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UNIVERSITY STUDIES.

VOL. I. *JULY, 1888.* NO. 1.

I. — *On the Transparency of the Ether.*

BY DEWITT B. BRACE.

WHETHER light coming from the remotest members of the visible universe has not been enfeebled to a greater extent than the variation of distance would require, is still an open question. If there be absorption at all, it must be exceedingly small through spaces comparable with the dimensions of the solar system, in order that the light of these distant bodies may be perceived.

It is proposed in the present paper to investigate the phenomena which would occur if the energy were absorbed by the ether itself through frictional forces or imperfect elasticity. If absorption does take place, there must be a differential effect for varying wave-lengths, if the ether satisfies the equations of motion of elastic bodies. Several arguments have been advanced as proving that such an absorption takes place, of which those of Cheseaux, Olbers, and Struve are the most celebrated. Considerations on other grounds would seem to suggest such a conclusion. Cheseaux and Olbers, arguing from insufficient data as to stellar distribution, have shown that if the number of stars is infinite and distributed with anything like uniformity in space there must be absorption of light, as otherwise the sky would appear all over of a brightness approaching that of the sun,

since the brightness at any point depends on the depth of the luminous layer and the solid angle which it subtends at that point.

The researches of both Herschel and Struve prove a non-uniformity of distribution in all directions, but a concentration of stars toward the medial plane of the Galaxy, more marked the smaller the magnitude of the star. Struve, from conclusions based on the supposition of an average uniformity of stellar distribution in layers parallel to this central plane, and on the assumption that the brightness is a measure of the relative distance, attempted to prove that absorption must take place. In fact, for a uniform distribution the number of calculated stars of different magnitude should vary inversely as their brightness. Now the number of calculated stars of any magnitude exceeds slightly the number observed, this excess being greater with the diminution of the magnitude. Hence it is concluded that absorption must take place to explain this increasing discrepancy, and that there must be a limit to the space-penetrating power of a telescope much lower than the enfeeblement of light with the distance would require. Later investigations regarding the constitution of the visible universe show that Struve's assumptions were false, and that no law of uniformity in distribution or in intrinsic brightness can be accepted. While it is at present impossible to ascertain with much accuracy the real magnitudes of the stars, there are sufficient data to show that both their volume and their intrinsic brightness, per unit surface, vary between wide limits. The annual parallax of several stars, as measured by different observers, gives approximately consistent results. A comparison of the brightness and distances of these stars with the intrinsic brightness and distance of the sun, as made by Zöllner, shows that the sun's volume is but a small fraction of that of these stars, supposing equal intrinsic brightness per unit of surface. This method of comparison, when applied to Sirius, gives a much greater volume than other methods would warrant, though far exceeding that of the sun in any case. It must hence

be concluded that the intrinsic brightness of a unit of its surface is much greater than that of the sun. The results of spectrum analysis point to a wide variation in the age and temperature of different stars, some being very much farther advanced in the process of cooling than others. It seems certain from these considerations that not only the absolute size but the intrinsic brilliancy vary within very wide limits, some stars emitting several thousand times as much light as others.

The observations on stellar distribution indicate a much more complicated law than the earlier observers supposed. The more or less marked crowding together of stars in certain regions, with the existing intermediate voids, and the only partial resolvability of these aggregations, show a tendency to some system of clustering in which the various orders of magnitudes are actually intermingled. In certain regions the more minute stars are much more sparsely scattered than in others, while the distribution should approach more marked uniformity with diminishing magnitude. The absence of vast numbers of stars, with excessive crowding of the smallest magnitudes which such a distribution would require, shows that the telescope can penetrate to the bounds of the system in these regions.

The observations on the immense extent of the orbits of certain binary stars furnish evidence that there exists a connection between certain stars which have not heretofore been suspected as being members of the same system. The fact that the stars are gathered together in clusters principally in or near the Galactic zone indicates that they must form a part of the Galaxy, since there is no reason why, if they were outside our stellar system, they should not be more uniformly distributed toward the poles of this zone. These evidences of the complexity of the laws of distribution in magnitude and distance furnish strong proof that the present stellar system is finite, and that it does not appear so from the ultimate absorption of the light of the remoter members of an infinite system. Nothing but a cosmical veil of vary-

ing tenuity existing in interstellar spaces and closing our view more or less effectually from the infinite expanses beyond, could possibly explain these appearances, — a supposition which is wholly unallowable. If there be absorption in space, it must be determined by other methods than the one by which Struve attempted to prove it.

If the law of the Dissipation of Energy is absolutely universal, then it must be allowed that no distortion of the ether can take place without a certain loss of energy however small, so that the luminiferous vibrations would be gradually frittered down, and after an almost infinite number of such distortions be dissipated away so as to escape perception. On this hypothesis, from analogy with all known phenomena connected with ponderable bodies under similar conditions, a differential effect should be produced for different periods of vibrations, which would give a perceptible coloration in distant stars.

If an excessively diffused material substance be supposed scattered through space in a gaseous state, such a body could only absorb selectively through its atoms, its molecules being too widely scattered to allow of any transformation of energy into molecular friction. Hence the only loss, other than by selective absorption, would be in the ether itself. The absorption would then take place according to the same laws which determine it when such a substance is not present.

In a medium in which there were dissipative forces proportional to the rate of distortion, there would be a relative change in the velocity of propagation of transverse vibrations of different periods which, for sufficiently great distances, might be detected in the coloration produced by any sudden outburst or extinction of starlight. If the absorption were small, such a difference in the velocities of different rays would be exceedingly small, even for distances comparable with the greatest dimensions of the stellar system, so that the coloration could only last for a very short time.

The luminiferous medium bears a close analogy to the ponderable substances of nature in respect to its rigidity for

high rates of distortion and its apparently perfect fluidity for motions of distortion of low rates. The existence of such apparently incompatible qualities does not seem so difficult to understand, when a material substance subjected to rates of distortion of far less range than the extreme limits at which these two qualities are observed to exist in the case of the ether appears in the one case like a rigid solid, and in the other like a very mobile fluid.

Maxwell found that, by rotating a cylinder rapidly in a liquid and passing a ray of polarized light close to its surface, the plane of polarization was altered, proving clearly a state of strain for ordinary liquids when the rate of distortion is sufficently high. Sir William Thomson has also shown how wax or pitch may, in the one case, vibrate like ordinary solids, and, in the other, allow bodies to pass very slowly through them without appreciable resistance. The luminiferous medium presents similar phenomena. For periods of vibration comparable with those of light, it acts like a very elastic solid. For low rates of distortion like those which the motions of the planets and comets as well as those which the molecules of a gas produce, there is no sensible resistance, and the medium seems to act like a perfect fluid. That this resistance is exceedingly small is shown by the fact that the comets, which are in general of extreme tenuity, give no definite indications of a resisting medium in space.

While the properties of the ethereal medium manifestly transcend those of ordinary matter, yet it seems to fulfil, in the qualities of elasticity and fluidity, the conditions of natural bodies. Very strong analogy to the ether is furnished by viscous substances, and these substances always dissipate more or less rapidly any vibrations to which they are subjected, proportionally to the rate of distortion, — at least for small rates. If the ether has a corpuscular structure, — and it is difficult to conceive of absorption otherwise, — and the analogy in respect to viscosity is extended to it, as well as the analogy in respect to its elasticity and fluidity, there should be a loss or transformation of radiant energy.

Loss of energy may also take place in other ways depending on imperfect elasticity alone, or the loss may arise both from viscous forces and from imperfect elasticity. In the one case we have the stress varying with the rate of distortion, and in the other, with the duration and magnitude of the strain. The existence of either will give a differential effect for the absorption of different rays.

Suppose that absorption does take place, the amplitude of a periodic motion would be some function of the distance, wave-length or period, and of the viscosity and imperfect elasticity. Let it be required to find the form of the function for parallel rays of light, propagated in the direction of the y-axis and with a displacement ξ parallel to the x-axis.

Let

$$\xi = A\epsilon^{-ipt} F(y, \lambda, \mu), \tag{1}$$

where $A\epsilon^{-ipt}$ represents a periodic motion at the origin, of amplitude A, and μ the coefficient of viscosity. When dissipative forces proportional to the relative velocities are present, the form of the function F is readily obtained. If the ether is perfectly elastic, the equation of motion for parallel rays is

$$\rho \frac{\partial^2 \xi}{\partial t^2} = n \frac{\partial^2 \xi}{\partial y^2}, \tag{2}$$

where ρ is the density and n the rigidity of the ether. Now Stokes has shown in his celebrated paper "On the Friction of Fluids in Motion"[1] that the expressions for the stresses in an isotropic solid may be obtained directly from those found for the case of a viscous fluid in motion by merely substituting the displacements ξ, η, ζ for the velocities u, v, w, and the rigidity n for the coefficient of viscosity μ. In the case under consideration, we have not only the rigidity n, but a viscous coefficient μ, each of which produces a shearing stress independently, so that the resulting stress will be the sum of the two, and the equation of motion becomes

[1] Collected Papers, Vol. I.

$$\rho \frac{\partial^2 \xi}{\partial t^2} = n \frac{\partial^2 \xi}{\partial y^2} + \mu \frac{\partial^3 u}{\partial y^2};$$

or, since

$$u = \frac{\partial \xi}{\partial t}, \tag{3}$$

$$\rho \frac{\partial^2 \xi}{\partial t^2} = n \frac{\partial^2 \xi}{\partial y^2} + \mu \frac{\partial^3 \xi}{\partial t \partial y^2}.$$

The left-hand side represents the force of acceleration per unit of volume; the first term of the right-hand side expresses the force arising from the distortion of the surrounding ether, and the second term the dissipative force arising from the rate of distortion. A particular solution of this equation is

$$\xi = A\epsilon^{\beta y - ipt}. \tag{4}$$

Substituting in equation (3), we have

$$-\rho p^2 = n\beta^2 - i\mu p\beta^2. \tag{5}$$

Since we are dealing with simple periodic motions, p must be real, and β must therefore be complex.

Let

$$\beta = -\kappa + i\gamma, \tag{6}$$

where $\gamma = \frac{p}{V}$. Substituting in (5), and separating the real and the imaginary terms, we have

$$\begin{aligned} 0 &= \rho p^2 + n\kappa^2 - n\gamma^2 - 2p\mu\kappa\gamma, \\ 0 &= 2n\kappa\gamma + p\mu\kappa^2 - p\mu\gamma^2; \end{aligned} \tag{7}$$

whence

$$\begin{aligned} \gamma^2 - \kappa^2 &= \frac{p^2 a^2}{a^4 + p^2 \nu^2}, \\ \kappa\gamma &= \frac{p^3 \nu}{a^4 + p^2 \nu^2}, \end{aligned} \tag{8}$$

where $\nu = \frac{\mu}{\rho}$, is the kinematic coefficient of viscosity. Now κy cannot be a large quantity, since the light of stars at a very great distance y reaches us; hence κ, and consequently

ν, must be very small. Neglecting squares of small quantities, we have

$$\gamma = \frac{p}{a},$$

$$\kappa = \frac{p^2 \nu}{2 a^3} = \frac{2 \pi^2 \nu}{a \lambda^2}, \tag{9}$$

putting for p its value

$$\frac{2\pi}{\tau} = \frac{2\pi a}{\lambda}.$$

A very small change in the velocity may produce an appreciable retardation of different rays for very great distances. Expressing γ to the next order of approximation, we have on expanding

$$\gamma^2 = \frac{p^2}{a^2} - 3\kappa^2,$$

neglecting small quantities of higher orders than κ^2. Since κ is a very small quantity, we may put

$$\kappa = \frac{w}{y},$$

where y is a large quantity, and w has different but not large values. Putting

$$y = Vt' = at,$$

and substituting, we have

$$p^2 \left(\frac{1}{a^2} - \frac{1}{V^2} \right) = \frac{3 w^2}{y^2},$$

or

$$t^2 - t'^2 = \frac{3 w^2}{p^2};$$

$$\therefore t - t' = \frac{3 w^2}{8 \pi^2} \frac{\tau^2}{t}, \text{ nearly.} \tag{10}$$

This shows that the relative retardation of the different rays due to viscosity is too small to be observed, even when the time t, necessary for light from the most distant visible object to reach us, is very great.

Substituting now in (4),

$$\xi = A\epsilon^{-\frac{2\pi^2\nu}{a\lambda^2}y + i\frac{p}{a}y - ipt};$$

or, omitting the imaginary part,

$$\xi = A\epsilon^{-\frac{2\pi^2\nu}{a\lambda^2}y}\cos\left(\frac{py}{a} - pt\right) = A\epsilon^{-\frac{2\pi^2\nu}{a\lambda^2}}\cos 2\pi\left(\frac{y}{\lambda} - \frac{t}{\tau}\right). \quad (11)$$

Thus $$F = \epsilon^{-\frac{2\pi^2\nu}{a\lambda^2}y + i\frac{p}{a}y}$$ approximately. (12)

Stokes[1] has advanced the view that a fluid may be an extremely plastic body which admits of "a finite, but exceedingly small amount of constraint before it is relieved from its state of tension by its molecules assuming new positions of equilibrium." He suggests that the ether may be like a very plastic substance, which allows of the free motions of solids through it, but which also admits of small amounts of constraint without permanent distortion. He instances[2] as an illustration a mixture of jelly and water in varying proportions, which will admit of a given amount of constraint without dislocation, this constraint being less and less as the mixture is made thinner. Now all solid bodies in nature seem to possess to a degree more or less marked the quality of "Elastic After-effect," as observed by Weber, Kohlrausch, and others, where the elastic recovery, as well as the stress produced by any strain, depends on the time. Extending this quality to the ether on the supposition that it is an extremely plastic body and should possess the same kind of qualities as other plastic substances, it would seem that a loss of energy could take place from this cause. In this case F will have a somewhat different form from (12).

Suppose that the stress at any time is independent of the rate of shear, but depends on the duration and magnitude of the strain, as it would if the "Elastic After-effect" were present.

[1] Collected Papers, Vol. I., page 125.
[2] Collected Papers, Vol. II., page 12.

The exact expression for this effect would be complicated, depending as it does on previous strains. But for a succession of waves of given period, the change in the stress would evidently be, on the whole, proportional to the distortion and the time, when the distortion did not vary greatly and the time was very small.

Since the duration of the shortest waves in the visible spectrum is very small and about half that of the longest waves, and since the relative distortion does not vary greatly for the vibrations of different rays in a normal spectrum, the mean relative diminution in the stress, and hence the relative diminution in the amplitude, may be taken proportional to the relative distortion, and to the duration of a wave period, directly. The distortion at any time is proportional to the displacement directly, and to the wave-length inversely. Hence the change in the displacement which takes place during any short time Δt, or in passing over a space Δy, is

$$a\frac{\xi}{\lambda}\Delta t = a\frac{\xi}{a\lambda}\Delta y,$$

where a is the velocity of propagation and a is approximately constant over wide ranges in the distortion. After passing over a distance $y = n\Delta y$, the displacement would be

$$\xi\left(1 - \frac{a}{a\lambda}\Delta y\right)^n = \xi\epsilon^{-\frac{a}{a\lambda}y} \tag{13}$$

since $\frac{a}{a\lambda}$ is a very small quantity, and its square and higher powers may be neglected. Hence, since the motion is a periodic function of the time and distance,

$$\xi = A\epsilon^{-\frac{a}{a\lambda}y + i\frac{p}{a}y - ipt} = A\epsilon^{-\frac{a}{a\lambda}y}\cos 2\pi\left(\frac{y}{\lambda} - \frac{t}{\tau}\right). \tag{14}$$

Hence, in this case,

$$F = \epsilon^{-\frac{a}{a\lambda}y + i\frac{p}{a}y} \quad \text{nearly.} \tag{15}$$

In the actual case of solid bodies, the decay of a vibration does not seem to follow either equation (14) or equation (12). Sir William Thompson found that the relative diminution in the amplitude of vibrating wires of different periods was less than it would be if it were due to viscosity alone, and greater than it would be if due to imperfect elasticity or the Elastic After-effect alone. However, the diminution was more rapid for short periods than for long ones, indicating a dependence on the rate of shear, as well as on imperfect elasticity. The law of decay, if due to both these causes, would be expressed by the equation

$$\xi = A\epsilon^{-\left(\frac{\theta_1}{a\lambda} + \frac{\theta_2}{a\lambda^2}\right)y} \cos 2\pi\left(\frac{y'}{\lambda} - \frac{t'}{\tau}\right), \qquad (16)$$

where θ_1 and θ_2 are unknown, but may be determined by experiment for different substances subjected to different rates of distortion. The three formulæ

I. $$\xi = A\epsilon^{-\frac{2\pi^2\nu}{a\lambda^2}y} \cos 2\pi\left(\frac{y'}{\lambda} - \frac{t'}{\tau}\right),$$

II. $$\xi = A\epsilon^{-\frac{a}{a\lambda}y} \cos 2\pi\left(\frac{y'}{\lambda} - \frac{t'}{\tau}\right),$$

III. $$\xi = A\epsilon^{-\left(\frac{\theta_1}{a\lambda} + \frac{\theta_2}{a\lambda^2}\right)y} \cos 2\pi\left(\frac{y'}{\lambda} - \frac{t'}{\tau}\right),$$

indicate the absorption as depending on the wave-length. If absorption takes place in the ether in a way analogous to that in ponderable substances, it must follow one of these laws, which include all modes of absorption for ordinary bodies, and hence coloration should occur in varying amounts with the distance. The equation II. represents the case of minimum coloration.

From what is known of the decay of vibrations in material bodies, it seems most probable that the conditions of the problem are most nearly satisfied by I. When the rate of distortion in solid bodies is considerable, the viscous resist-

ance seems to increase less and less rapidly with the rate of shear. When this rate is diminished, the law of viscous resistance seems to become more and more nearly proportional to the rate. When the rate of distortion is very small, it is directly proportional to it. In III., then, the smaller the rate, the larger θ_2 becomes relatively to θ_1, until finally the term containing θ_1 may be neglected. Somewhat similar considerations show that, if absorption depends on the rate, as in natural bodies, the proportional law for viscous resistance must hold in the solution of our present problem. In solids, the viscous resistance to finite rates of shearing is finite, and hence, for very small rates, the viscous resistance must also be very small. For luminous vibrations, the rate of distortion must be very great, in any case, to be perceptible. Further, the range over which this rate extends must be excessively wide, since, applying the law of the inverse distance for the amplitude to the remotest visible stars whose light occupies several thousand years in reaching us, it is evident that the amplitude must be diminished many million times. If A is the original amplitude,

$$\xi = \frac{A}{y} \epsilon^{-\kappa y} \qquad (17)$$

is the amplitude of a spherical wave at a distance y from the origin, if absorption is present; $\frac{A}{y}$ is the amplitude if it is not present. As y is always large, even for the nearest stars, κ must evidently be small, in order that their light may be sensible. Since, for the greater amplitudes or higher rates of distortion, the viscous resistance of ether must be small; for the lower rates of distortion, the viscous resistance must be very small stresses proportional to the rate of shear and subject to the principle of superposition, which has been assumed in deriving I. As a ray of light from such a star is diminished to a small fraction of its original amplitude before passing over a considerable portion of its path, it may be considered as following this law approximately. If this law were

not followed until a further diminution in amplitude, the relative coloration between the nearer and remoter stars, depending on the distance, would only be the more marked, since the differential effect would be less for the nearer than for the remoter stars.

As the light must pass through our own atmosphere, a further absorption must take place, which also varies with the wave-length. It will be necessary to include this effect in the relative coloration to determine what the resultant appearance would be.

Let

$$\xi = A\epsilon^{-[\psi(\lambda)y+\phi(\lambda)y']} \qquad (18)$$

represent the law of absorption, where $\psi(\lambda)y$ corresponds to the exponents in I., II., III., and $\phi(\lambda)y'$ is the corresponding exponent for atmospheric absorption through any thickness y'. As both ψ and ϕ are approximately independent of the amplitude, they are interchangeable as regards sequence in absorption, and we may suppose the atmospheric absorption to have taken place first. Hence in every case, we can leave out of consideration this effect and simply apply I., II., and III. to spectra as they are seen, to determine the relative coloration produced by absorption in space alone.

We have now to apply I., II., and III. to a normal spectrum to determine the amount of energy absorbed when coloration is perceptible. In plate I., the curve A^2 represents approximately the distribution of energy in the visible portion of the normal solar spectrum for different wave-lengths at high sun, according to Langley.[1] The effect of space-absorption on the solar spectrum would be inappreciable. Let now such a spectrum be carried to a very great distance; suppose the rays parallel, and absorption present. The loss of energy can be represented graphically by plotting curves with values obtained from I., II., and III. The intensity is proportional to the square of the amplitude or in I. and II. to

[1] Researches on Solar Heat, Plate I. Prof. papers of U. S. S. S., No. XV.

I *a.* $$\xi_1^2 = A^2 \epsilon^{-\frac{4\pi^2 \nu}{a\lambda^2} y}.$$

II *a.* $$\xi_2^2 = A^2 \epsilon^{-\frac{2a}{a\lambda} y}.$$

Curve I_1 represents the distribution of energy according to I *a.* after the amplitude of a wave corresponding to .80 in the diagram has been diminished .01 of its original value. Curve I_2 and II_2 represent this distribution according to I*a.* and II*a.* respectively after a diminution in amplitude of .10 of its original value for the same wave. The law representing absorption according to III. would be a curve between these two. The curve A_1^2 represents what the normal distribution would be if no energy had been absorbed and the amplitude had been uniformly diminished by .10. From these curves we are able to determine the proportion of the rays lacking in the different parts of the spectrum which would when added give the original spectrum. Thus from I_1 of the red rays about .006 are lacking; of the orange and yellow, about .020; of the green, nearly .030; and of the violet, about .050. In the same way for curve I_2, about .06 of the red rays would be lacking, .15 of the yellow, .20 of the green, and about .50 of the violet. If the law of absorption is according to curve II_2, about .03 of the red would have been absorbed to .06 of the yellow, nearly .10 of the green, and nearly .40 of the extreme violet. It is thus evident that the greater the absorption, the redder the spectrum will appear.

Aubert has shown that less than one per cent of red mixed with white is perceptible. For sufficient intensity, curve I_1 would be within this limit, so that a hue near the orange-red would be perceptible. Either I_2 or II_2 would evidently give a very perceptible reddish tinge. Thus from the hue it is possible, for a given intensity, to determine the total loss in intensity and the diminution in amplitude. In the curve I_1 the amplitude of the yellow rays has been diminished from two to three per cent. In curves I_2 and II_2 the diminution has been about twenty per cent and fifteen per cent respectively.

In the case of the heavenly bodies there should then be a coloration, becoming more marked with the distance, this coloration also depending in part on the intensity. No regular gradation in hue is perceptible, and hence it may be concluded that the loss of energy is small, if any. From what is known of the spectra of incandescent bodies, the effect of increase of temperature is to displace slightly the position of maximum energy up the spectrum. Any irregular distribution of stars as regards temperature would not cause the average light of a certain number in one part of the heavens to differ materially from that of another number taken anywhere else in the heavens. To carry the test for absorption to the utmost limit possible, we have only to consider those milky patches of light visible to the eye in the Galaxy; or, better, those star clusters which are barely resolvable with the best telescopes; or, going still further, to consider those nebulæ whose spectra resemble the stellar spectra, and which consequently are probably resolvable into stars. From the vast number of stars which must constitute such a stellar mass, it may be concluded that if there were no absorption, the light with which such a mass would shine would be white. In traversing such vast distances, the absorption must be infinitesimal, not to produce a perceptible coloration. The general absence of gradation in color, even in the remotest visible bodies, shows that but a small per cent of their light can have been lost in space. This shows that $\epsilon^{-2\kappa y}$ cannot differ from unity by more than a small quantity. Hence κy will in general be less than unity, and κ will not be greater than $\frac{1}{y}$, which for the distances we have been considering, is excessively small. Referring to equation (10), we see that w is nearly unity, and hence the difference in time of propagation is a very small quantity, even for the remotest visible bodies.

Taking now our complete equation as it would be for plane polarized light propagated in spherical waves, we have for the intensity at any point

$$\xi^2 = A^2 \frac{\epsilon^{-2\kappa y}}{y^2} \qquad (19)$$

Thus the variation in intensity with distance becomes

$$\frac{\epsilon^{-2\kappa y}}{y^2} = \frac{1}{y^2} \quad \text{approximately,} \tag{20}$$

when y is taken as the dimension of the visible universe. In order that the effect of absorption might equal that due to the variation in distance, we should have to take a distance ny, such that

$$(\epsilon^{-2\kappa y})^n = \frac{1}{(ny)^2},$$

or

$$(.9)^{2n} = \frac{1}{(ny)^2}, \tag{21}$$

if the diminution in amplitude from absorption were ten per cent for a distance y. Thus n would have to be very great, and the system would be of dimensions n times as great as those of our own stellar system. To a close approximation, the system should have the same appearance whether absorption were present or not. The apparent finiteness of the stellar universe cannot thus be due to absorption, as Struve supposed, his assumption of uniform distribution requiring a loss of as much as one-third the light of stars of the ninth magnitude.

Either, then, the universe must be finite, or, if infinite in extent, the average density of distribution of self-luminous bodies outside our own system must be exceedingly small, as otherwise the sky would appear of a uniform brightness, approximating that of the sun.

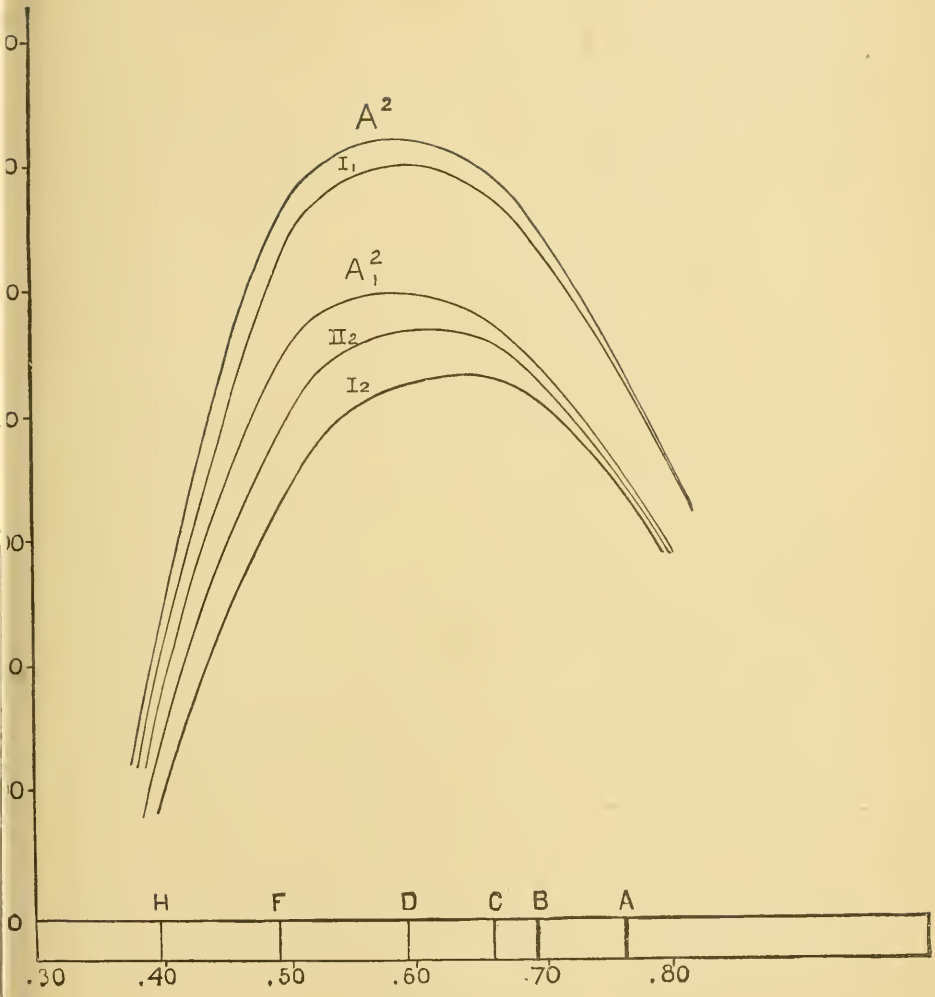

Plate I.

II. — *On the Propriety of Retaining the Eighth Verb-Class in Sanskrit.*

By A. H. EDGREN.

Doubts concerning the propriety of retaining the Hindu classification of the so-called *tan*-verbs in a special conjugation date as far back as Bopp. The first, however, to devote to the subject a careful investigation was Brugman in his article *Die achte conjugations-classe des altindischen und ihre entsprechung im griechischen* (Kuhn's Zeitschr. XXIV.), where he tried to prove — except for *kar* — the identity of the *tan* (VIII.) and *su-* (V.) classes, on principles of which I shall speak later. He was followed by a Belgian savant, Professor Van den Gheyn, who also tried to establish the same identity, but on principles wholly different in nature from those adopted by Brugman. Having myself, for the preparation of my brief Sanskrit grammar (Trübner, 1884), made an independent investigation of this subject of the *tan*-verbs, and for the first time in any similar work classified them with the *su*-verbs as forming with these one class with the present-sign *-nó*, I put my notes together in a brief paper ('On the verbs of the so-called *tan*-class in Sanskrit'), which I presented at the meeting of the American Oriental Society in May, 1885, and which was subsequently reported in the proceedings of that society. My short remarks, in which I took issue especially with Van den Gheyn, called forth from him, as a reply, a special paper in *Bulletins de l'Académie royale de Belgique* (XI., 1886), in which he tried to refute, with all fairness and courtesy, the arguments adduced by myself, in so far as they differed from his own, and to reaffirm the position he had already taken.

However improbable I judged Vân den Gheyn's mode of explanation, I was satisfied to dismiss the question for the time being. But as no agreement is yet reached with regard to the treatment of the *tan*-verbs, — some, as especially Sanskrit grammarians, adhering to the Hindu classification, while others disagree concerning the principle on which the Eighth class should be given up, — it has seemed that an amplified review of my own arguments may not be useless as a contribution towards a definite settlement of the disputed question.

The root-verbs of the Sanskrit language are by Hindu grammarians, as is well known, classified, according to the various forms of their present-stems, into ten groups or conjugational classes, which are designated by the root heading each group in the native lists. The present-stems of the *su* and the *tan*-class (*i.e.* of classes Fifth and Eighth) are said to be formed respectively by adding to the root the suffixes *-nu* (*su-nu-*) and *-u* (*tan-u-*), which are gunated in strong forms.

The Hindu system of classification, and along with it the distinction made between the *su*-class and the *tan*-class, was naturally enough adopted in the earlier grammars published in Europe. Bopp, however, who did not fail to notice that all the roots of the *tan*-class — *kar* alone excepted — terminate in *-n*, doubted the propriety of separating in principle the *tan*-class from the *su*-class, and suggested that the tense-sign for both the classes was originally *-nu*, and that this sign in the *tan*-class then lost its initial nasal after the nasal of the root. Yet his doubts did not lead him to deviate in his own grammar from the Hindu classification. Benfey, likewise, was inclined to combine the two classes into one, and suggested, though, like Bopp, without special investigation of the subject, or practical application of the principle, that the nasal of the *tan*-verbs may in fact have been artificially transferred to them from the suffix.

Such suggestions, however, as were made by Bopp and Benfey were generally left unheeded by later grammarians as

resting on no proofs; and the Hindu system was reproduced by them, either absolutely (as by Müller, Williams, Westergaard, Kielhorn, etc.), or modified in such a way that the *tan*-class, always with the suffix *-u*, was arranged as a sub-class under the *su*-class (by Whitney and Harlez).

It is really outside of the pale of the Sanskrit grammarians that some attempts have been made to prove by the facts of the language and of comparative philology the identity, in the main at least, of the two classes in question. Brugman in his above-named article, *Die achte conjugations-classe des altindischen etc.*, assumes without farther argument, and as a generally admitted fact, that the *tan*-verbs terminating in *-n* have received that nasal by artificial transfer from the suffix, and turns the force of his argument on the verbs in *-an*, which he considers as forming their present system by the suffix *-nó* (*nu*), before which *an* is weakened to *a* (through *n̥*), according to his well-known theory of a nasal vowel. As for *kar*, he refers it, as irregular, to the second class (its root-formation being yet discernible in *kur-vás*, *kur-más*, while *karó-mi*, etc., are formed after the analogy of *kuru-thá*(*s*), whose second *u*, however, is a mere phonetic addition, not a suffix).

Quite a different theory was put forth by Van den Gheyn in an article on the verbs of the Eighth class, published in *Bulletins de l'Académie royale de Belgique* (L., 1880), and further supported by two new articles in the same publication (VII., 1884, and XI., 1886). Van den Gheyn endeavors to show in these articles by the facts of Sanskrit, and of cognate languages as well, that the final nasal of the *tan*-verbs is not original, but a later accretion, a transfer from the present-sign to the root, and that these verbs properly belong to the Sixth or *su*-class. As for *kar*, he adopts the hypothesis of Harlez, who considers *kur* to be the '*thème principal*' of the verb (cf. *kurmi*, epic, *kurvas*, *kurmas*), and attributes its later changes to analogy. As already noticed, Benfey had before suggested the theory of *ta* instead of *tan*-roots, and Gustav Meyer had likewise pointed out the analogy of forms like *ta-tá*: τα-τός, τέ-τα-κα, etc., in support of his hypothesis that

the original root of these forms was *ta*, not *tan*. But Van den Gheyn was the first to present a detailed argument in favor of this view, and may be considered as its chief advocate.

The following considerations based, in the main, on an examination of the inflectional and derivative forms of the *tan*-verbs in Sanskrit, but also on the evidence of cognate forms in other languages, would seem to confirm, in the main, the position taken by Brugman, although its correctness is not made dependent on the theory of a nasal vowel.

The Hindus classified with the *tan*-class ten verbs, viz., three in *-ṛṇ: arṇ, gharṇ, tarṇ;* one in *-iṇ: kṣiṇ;* five in *-an: kṣan* (*kṣaṇ*), *tan, man, van, san;* and one in *-ar: kar*, — the only one that does not terminate in a nasal. To these have been added, on more or less convincing evidence from the Sanskrit literature, *in, han*, and *tar*.

As regards those three roots that terminate in *-ṛṇ*, the following considerations are to be noticed.

The mere fact that the root *arṇ* is said to be inflected exactly like the well-authenticated root *ar* (*ṛ*), — both forming the strong and weak stems *ṛṇó* and *ṛṇu*, — and that the meaning assigned to each is the same, suggests that the former is nothing but an artificial extension of the latter, having no independent existence whatever, — a suggestion which is corroborated by the facts in the case. In the first place, no verb-form whatever outside of the present system has been made from a radical *arṇ*. Further, among all the derivatives (not less than 35) that must be referred to either of the two roots in question, only three, *árṇas, árṇa, ṛṇá*, contain a nasal. But that nasal may here be explained as belonging to the suffix. The primitive suffix *-nas*, though rare, occurs beyond question in some words (cf. *áp-nas* 'possession,' *-bhar-ṇas* 'offering,' etc.) formed precisely like *ár-ṇas*. A primitive suffix *-na* is, indeed, hardly met with, except in participles. But *árṇa* 'agitated,' as a noun (m.) 'flood,' if not a participle, is too evidently of the same stock with *árnas* 'flood' to be

separated from it (cf. *apna-* : *ápnas* 'possession,' *dráviṇa* : *draviṇas* 'chattel'). As for *ṛṇá* 'debt,' its derivation is quite uncertain, but if we must resort to *ar* or *arṇ*, nothing better can be suggested than the participial form *ṛ-ṇá* 'hurt, burdened, in-debted, (*n.*) debt.' Finally, not one of the kindred words in the sister-tongues — and the number of such words is quite considerable — shows any trace of a root-nasal, unless, indeed, as suggested by some, it be ὄρνυμι, whose *ν*, however, is much more likely to belong to the suffix *-νυ* (cf. ὤρ-ορ-ον, etc.).

As regards *gharṇ*, which is said to mean 'shine,' no verb-form that could be referred to such a root has been met with in the extant literature. It might then be left out of consideration here, were it not that a couple of nominal forms, *ghṛṇá* 'heat' and *ghṛ́ṇi* 'heat,' seem referable to the root *gharṇ*. As the native root-lists give also the root *ghar* (*ghṛ*) 'shine,' as belonging to the *su*-class, it is evident, however, that this root is the only acceptable form, and that *gharṇ* sustains to *ghar* precisely the same relation as *arṇ* to *ar* (*ghṛ-ṇá*, *ghṛ́-ṇi* being quite regular formations). This supposition is decidedly favored by kindred words in related tongues (cf. Zend *gar-ema*, Gr. θέρ-ομαι, θέρ-μη, θέρ-ος, etc.; Lat. *for-mus*, etc.; Goth. *var-m-jam*; Slav. *gr-ě-ti*, etc.).

With reference to *tarṇ*, said to mean 'graze,' it is, like *gharṇ*, entirely unauthenticated; and as there seems to be no support for the acceptation of any similar root in any other Indo-Germanic tongue, it may well be considered as wholly fictitious, and invented to furnish an etymology for the noun *tṛ́ṇa* (*tṛṇá*) 'grass.' This noun may possibly be a participial form (parallel with *tīṛṇá*) of *tar* in the sense of 'broken through,' — viz. the soil (cf. *tīrṇa-padi* name of a plant).

We come next to the root *kṣiṇ* 'destroy,' which has no more right to appear in the root-list than *arṇ*, above. Even here we find a shorter and well-authenticated root *kṣi* 'destroy' inflected according to the *su*-class (*kṣi-ṇó-mi*, etc.). No certain or authenticated example of a nasal is found either

outside of the present-system[1] or in derivative words. To be sure, we have beside the participial form *kṣitá* also *kṣīṇá* 'destroyed,' but the latter is usually understood to be one of the common participles in *-na*. The root of the corresponding Greek verb *φθίνω* 'perish' is *φθι-*, which occurs everywhere outside the present-system. Also *κτίννυμι* 'kill' has been suggested as a parallel form, and Curtius supposes its root to be *κτιν*, a weakened form of *κταν* = Skr. *kṣaṇ*. If the words are connected, the double nasal of *κτίννυμι* may, however, be explained as owing to a phonetic doubling between two vowels, — a process that is not uncommon, — or else, as Curtius suggests, to a special weakening in Greek. And even if *kṣiṇ*, in spite of strong evidence to the contrary, be considered as a genuine root, its conjugation in analogy with *kṣaṇ*, of kindred form and meaning, would not be any more anomalous than the inflection of nominal *in*-stems in analogy with *an*-stems; and the present formation of *kṣaṇ*, as will be shown, is not *kṣaṇ-o-mi*, but *kṣa-ṇo-mi*.

It is evident from these facts that *arṇ*, *gharṇ*, and *kṣiṇ* are, in all probability, mere figments or pseudo-roots, which the Hindu grammarians have foisted into their root-lists without any good reason, and which consequently should be cancelled altogether, — as, indeed, they are, very rationally, in Whitney's grammar, in the enumeration of the *tan*-verbs (§ 713, and Root-supplement).

We come next to the five roots in *-an: kṣaṇ* 'destroy,' *tan* 'stretch,' *man* 'think,' *van* 'win, like,' *san* 'reach.' As their nasal occurs not only in the present-system, but also, with few exceptions, outside of that system and in derivatives, it has been considered both by native and western grammarians as pertaining to the radical forms underlying the whole conjugation-system of each of the verbs. Serious objections having been made, however, to this view by a few scholars, it will be necessary, before explaining the formation of the present stems of above verbs, to try to determine the nature of their nasal.

[1] Brugman quotes *kṣeṇiṣyáti*, for which I can find no authority.

It is of some importance here to distinguish between that stage of the Indo-European language when the radicals which are now deduced by comparative analysis as those underlying its formal and inflectional development were already evolved, and a yet earlier stage when these radicals had not assumed the form they then had. There is, indeed, every reason to believe that such an evolution of roots from earlier germs, or perhaps, in some cases, from earlier polysyllabic and compounded entymons, took place long before the language passed into its inflectional stage, and in some instances we may even yet discover the probable or evident traces of such a development. Thus, it seems probable enough that couplets or groups of roots like *i : in* 'go,' *ci : cit* 'observe,' *mar* 'grind' : *marṇ* 'crush' : *mard* 'grind' : *march* 'hurt,' etc., are cognates of the same origin. If their original germ is actually represented by any one of the forms preserved to us, or if it is entirely lost, cannot be decided. There are some faint indications, indeed, that the shortest form may, ordinarily, be the most original, but they are after all uncertain.[1]

Now it so happens that for every one of the roots in *-an* enumerated above has been suggested also, on more or less convincing evidence, a co-ordinate radical lacking the nasal and terminating in *-a* or, usually, in *-ā*. Thus, cf. *kṣaṇ* 'hurt' : **kṣa* (in *ksapay-* 'destroy,' *tuvi-kṣa* 'much destroying,' etc.), and, perhaps, *kṣā* 'burn'; — *tan* 'stretch' : *tā* (in the pass. *tāyáte*, and in *tā́yate* 'stretches'); — *man* 'think' : (?) *mā* 'measure'; — *van* 'win, like' : *vā* 'desire' (in the participle *vātá* and the desid. *vívāsati*), *va* (only in *vasīmahi*); — *san* 'procure' : *sā* 'procure' (in *sātá*, *siṣ-āsati*, etc., and in *açva-sā* 'horse-acquiring,' etc.), *sa* (only in *sa-sa-vā́ṅs*). It is evident that the assumption of *ă*-roots finds a very meagre and doubtful support in these comparisons (about which later). But a host of forms, participles or derivatives, with a radical in *-a*,

[1] *Cf.* H. Edgren, "On the Verbal Roots of the Sanskrit Language and the Sanskrit Grammarians," *Journal of American Oriental Society*, XI., p. 5, etc.

instead of *-an* (*ma-tá*, *ma-tí*, *ta-tá*, *ta-tvā́*, etc.), which are by all grammarians and lexicographers referred directly to the roots in *-an*, have, farther, been explained by a few investigators as made from *a*-roots instead.

This apparent variation between *-an*, *-a*, and *-ā*-roots has been made use of to prove that the present *tanómi*, etc., was made from an *a*-root by adding the suffix *-nó* (*ta-nó-mi*), not, as assumed by the grammarians, from *tan* by the suffix *ó* (*tan-ó-mi*), nor, as advocated by Brugman, from *tan* by the suffix *-nó*, through **tn̥-nó-mi*, and that the suffixal *n* has penetrated outside the present system, or else that the so-called 'general tenses' are formed from a root *tan*, existing at the side of *ta*.

To this view some grave objections may certainly be made. Thus:

a. The root-forms required by the advocates of formations like *ta-nó-mi*, etc., are not *tā*, etc., but *tă*, etc. There may, indeed, seem to be some plausible reasons for accepting the existence of the former (as do Delbrück and Brugman), in so far as their occurrence in various forms is not yet satisfactorily explained on the basis of a phonetical change of *tan*, etc., and as the language after all has quite a number of *ā*-roots. But there is no very plausible, and yet less convincing, reason for assuming any roots in *-ă*, like *ta*, etc. The quoted verb-forms *kṣapáyati*, *vasīmahi*, *sasavā́ṁs* are nowise convincing. Causatives with *p* are not satisfactorily explained, and may come from roots in *-p*; *vasīmahi*, occurring only once (R. V. XI. 72), is probably for *vaṁsīmahi*; and *sa-sa-vā́ṁs*, which occurs a few times in different cases in the Rig and the Atharva Veda, though hard to explain satisfactorily (Grassmann and Delbrück suggest that it stands for *sasanvā́ṁs*, and Saussure for *sasāvā́ṁs*), cannot very plausibly be derived from *sa*, since no perfect-form, and in fact no tense-form whatever, of such a root is found in the language. Outside of the above forms, where analogy would require the nasal, if they are to be derived from roots in *-n*, the *-a* radical hardly occurs except where analogy would require a weaken-

ing of the root, especially on account of the displacement of the accent, as in verbal nouns in *-tá -tvā, -tya* (*ta-tá, ta-tvá, -ta-tya*, etc.), and in nouns in *-tí* (formed in analogy with participles in *-tá*).

In all other cases, and they are very numerous, we find the full *-an*-radical (*tán-a, tán-as, tan-ú, tán-tu, tan-tra*, etc.). It seems evident that we are here dealing with principles perfectly parallel with those that have produced such root-variations as in *hán-ti : ha-thá ; hán-am : ha-bhís ; rā́jān-am : rā́ja-bhis ; ás-ti : s-thá ; pitár-am : pitṛ́-ṣu : pi-tṛ́-n, pitr-ā́*, and so on ; and it would be late in the day now to try to substitute for the principle of accentual influence as causing these variations, the confusing principle of a variety of independent roots and stems.

b. Since there is no evidence that the so-called 'general tenses' are of a more recent formation than those of the present-system, there is also no good reason to assume that the *-a*-roots have formed first the latter, and then with an unparalleled accretion, the others. We should expect at any rate to find in the general tenses some trace of an earlier *-a*-root, but there is absolutely none. As for the assumption that the whole conjugation-system of the various *-an*-verbs is consistently made up of two independent roots, which, if existing at all, must have been distinguished by some shade of meaning peculiar to each, it would be hard to find anything parallel. To be sure, sporadic cases of root-mixture in the make-up of verb-systems occur in all languages, but they are usually of a different kind, consisting in the often traceable supplanting of an earlier form by one of a different verb (as in French of *ère* by *étais*), and, in all events, they never take place so systematically in a whole class of verbs.

c. If the facts of the Sanskrit language itself suggest clearly enough that the nasal of the *tan*-verbs is genuine, the evidence of cognate tongues also favors this view. To be sure, we find even in them radical elements corresponding to these roots with and without the nasal. Thus, cf. Skr. √*kṣaṇ* : Gr. κτείν-ω, κτόν-ος ; ἔ-κτα-τω, ἔ-κτα-ν, κτά-μενος ;

Goth. *ska-tha*(?); — Skr. √*tan.*: Gr. τείν-ω, τι-ταίν-ω, τέν-ων; τα-τός, τέ-τα-κα, ε-τάθην; Lat. *ten-do, ten-eo, ten-ax;* Goth. *than-jan;* — Skr. √*man:* Gr. μέν-ω, μέ-μον-α, μέν-ος; μαν-ία; μέ-μα-μεν, με-μά-τω; Lat. *mon-eo;* Goth. *mun-um, ga-mun-an;* Skr. √*van:* ἀ-ϝά-ω, ἀ-αα-τος; Lat. *ven-ia, ven-us, ven-ustus;* Goth. *vun-an, vinn-an;* — Skr. √*san:* Gr. ἕν-ω (Fick, I. 226), ἀνύω, ἄνω; ἔ-τος; Lat. *sinit, sen-ex;* Goth. *sin-ista, sin-teino;* and so on. This variation, however, nowise favors the theory of independent *-an* and *-a*-roots. The nasal is rarely lacking except in Greek, and its absence there is frequently explainable on precisely the same grounds as in Sanskrit, viz., as owing to an original weakening of the root: cf. *tatá* : τα-τός; *tatí* : τάσις; *matá* : -ματος; *satá* : ἕτος, etc. The very fact that cognate forms in other languages usually retain the nasal where it is lost in Sanskrit or Greek, tends to show that it is original, having disappeared in Sanskrit and Greek under certain circumstances which in the cognate tongues have produced different results: cf. Skr. *matá* or *matí*: Gr. ματος: Lat. *menti-*, Goth. *ga-mundi-;* Skr. *menimá* (for **me-m'n-i-ma*: *n* preserved by the following *i*): Gr. μέμαμεν: Goth. *munum*, and so on. Analogy has in all languages, as especially in Greek, wrought many changes, and must account for some of the seemingly irregular non-nasal radicals. Concerning the Greek forms, compare especially Brugman's article already referred to above.

If, then, contrary to the opinion of Van den Gheyn and others, it seems incontestable that the nasal of the roots *kṣaṇ, tan, man, van,* and *san* is genuine and original, at least with reference to the time when the inflectional system of the Indo-European language was developed, does it necessarily follow that in a stem like *tano-*, the suffix must be *-o* and not *-no?* Not at all. The stem would have precisely the same appearance were we to suppose either, with Bopp, that the *n* of the original *-no*-suffix has been dropped, or that the root itself had suffered mutilation before such a suffix. Let us then examine whether there are any considerations that will warrant us in accepting either of these theories, instead of

abiding by the native theory of two distinct tense-signs for the *su* and the *tan*-verbs.

As regards Bopp's theory, two strong objections may be urged against it. In the first place, I do not think there can be adduced, in the whole language, a single good instance of the loss of an initial nasal, or of any initial consonant whatever of a suffix or an ending, whereas the disappearance (no matter here if by direct loss or by change) of the final nasal of a root or a stem before a suffix consonant is a common and well-known phenomenon in Sanskrit. Witness examples such as *ta-tá*, *ta-tvā́*, *ta-tí*, *-ta-tya*, *ha-thá*, *-ha-bhís*, *rā́ja-bhis*, *jítva-su*, *balí-bhyas*, etc., for **tan-tá*, **tan-tvā́*, etc. Then, such a theory completely ignores any influence on the root on account of the accentual shift in *tanómi*, though such an influence is directly required not only in analogy with words of the kind quoted above, but also by the analogy of other *su*-verbs (cf. *star : str̥-ṇó-ti ; kar : kr̥-ṇó-ti*).

And it is precisely in consideration of this required weakening of the root that we are forced to explain the formation of *tanómi* as arising from a weakening of the unaccented *tan* to *ta* before the accented suffix *-nó*. Whether we are to consider this weakening as consisting simply in the direct loss of the final nasal of the root or in its vocalization after the loss of the preceding *a*-vowel, is immaterial to the argument, and need not here be discussed. It may be said, *en passant*, however, that the objections made by Van den Gheyn in his third paper against Brugman's *n̥*-theory are nowise convincing. It is true that no written language has left a trace of an *n̥*-vowel ; but written languages never perfectly represent all the sounds of the spoken. No modern language has any sign for either a liquid or a nasal vowel, and yet such vowels are often met with (cf. English *sabre*, *sable*, *fatten*, *button*, etc., pronounced like *sabr̥*, *sabl̥*, *fattn̥*, *buttn̥*). They may have existed just as well, though imperfectly represented, in older dialects, the skilful Hindu phoneticians being the only ones to recognize in writing any of them (*r̥* and *l̥*). Van den Gheyn also objects that while the *r̥*-vowel always leaves a

trace of its *r*, the *r̥*-vowel has entirely sacrificed its nasal in Sanskrit and Greek. Even here English has a lesson to teach. Dialectically the *r*-element of such words as *father*, *mother*, *arbor*, etc., is often omitted in both America and England (cf. Whitney, Orient. and Ling. Stud., II., p. 236). But that means virtually that those words often, instead of being pronounced regularly as *fathr̥*, *mothr̥*, *arbr̥*, are pronounced as *fatho*, *motho*, *arbo* (*o* being here used to denote the indefinite *ŭ*-sound in English). The *r̥*-vowel is not then alone in losing its consonantal element. As, however, the theory of a nasal vowel is nowise needed for the acceptance of the theory that *tan* is weakened to *ta* in *ta-nómi*, I will not insist any longer on its merits.

The last of the roots classified by the Hindu grammarians with the Eighth class is *kar* (*kṛ*) 'make.' It is well known that this verb was regularly conjugated according to the Fifth class in the older language (*kṛ-ṇó-ti*), and also in Zend (*kere-nao-ti*). Its later conjugation, however, is entirely anomalous, and has not yet been satisfactorily explained. The objections brought against Brugman's theory by Van den Gheyn in his second article seem to me, on the whole, justified. Unfortunately, he offers nothing satisfactory in its place. Possibly the whole problem might find a solution in supposing that the primitive language possessed, at the side of *kar*, also a radical *karr̥*, from which the latter (classical) present-system was made. In fact, a root *kṛv* (*karv*) is given in the Dhātupāṭha, and analogous radicals in *-v* (*-r̥*) are not uncommon in Sanskrit (cf. *carv*, *bharv*, *turv*, *dhurv*, *raṇv*, *dhanv*, and yet others). Probably these are all denominatives from stems in *-u*. Denominatives, to be sure, form their present-stems in *-a* or *-aya*, but *karr̥*, existing at the side of *kṛṇu* (which was the earlier and once prevailing stem), may easily have come to be conjugated in analogy with it, especially as their suffixal vowels coincided. But why, then, the change to *kur*(*u*)- in the weak forms? As is well known, the syllable *ar* often alternates with *ur*, especially in combination with a

labial (*e.g.* √*tar : turyāma, tuturyat ;* √*mar : mumurat, -mur, mūrṇa ;* √*par : pur* 'fulness,' *pur* 'fortress,' *puri, pūpurantu, pūr-* before consonants ; √*var : vurīta, urāṇas, vūrya ; pitaram : pitur*, etc.). There is, then, nothing anomalous in assuming that *kar*, influenced by the suffixal *u* of the weak forms, changed to *kur*, especially when we consider that the root-form *kur*, as indicated by the epic form *kurmi*, had a tendency to establish itself at the side of *kar*. The loss of the suffixal *-u* in the first persons (*kur-vás, kur-más*) accords so well with the usual formation of the *su*-verbs (*su-n-vás, su-n-más*), that it is precisely what we should expect. It is harder to explain its loss in the optative active (*kur-yā́m*), unless, indeed, we consider this tense as formed directly from *kur*, like *kurmi*, *i.e.* as borrowed from the root-class. Owing, no doubt, to the frequency of its use, *kar* shows a great mixture of forms (cf. auxiliaries, etc., in other languages). No other verb has a greater variety of stem-forms : *kar-* (*kṛ-*), *kara-*, *kṛṇó-* (*kṛṇu-*), *karo-*, *kuru-*, *kur- ;* and hence there is certainly no necessity to expect its conjugation in the classical period of the language to be of a homogeneous nature.

Having thus disposed of the verbs assigned to the Eighth class by the Hindu grammarians, little need be said of those arranged along with them by later discoveries, viz. : *han, in*, and *tar*. As for *han*, if the form *hanómi*, occurring only once, is correct, it is subject to precisely the same treatment as *tan*, and must be removed with it to the Fifth class. *In* retains its nasal even outside of the present-system. If this nasal is to be considered as genuine, the conjugation of *in* in analogy with roots in *-an* would not be any more anomalous than the inflection of nominal *in*-stems in analogy with *an*-stems. As for *tar*, we have only the doubtful and anomalous form *tarute*, occurring once in the Rig-Veda. It is too problematic to offer any grounds for a serious argument.

The result of the preceding investigation would then be that of the thirteen roots which have been referred to the

Eighth class, *arṇ*, *gharṇ*, *tarn*, and *kṣiṇ* are to be struck out as fictitious, and *tar* as of wholly problematic relation to the questionable form *tarute*, while the remaining roots must be referred to the Fifth class, — *kṣaṇ*, *tan*, *man*, *van*, *san*, *han*, as formed perfectly regularly with the suffix *-nó*, but *kar* and *in* as conjugated in analogy with verbs of that class.

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III. — *On the Auxiliary Verbs in the Romance Languages.*

By JOSEPH A. FONTAINE.

Diez in his well-known "*Grammatik der Romanischen Sprachen*" has treated the question of the use of the auxiliary verbs in the Romance languages only in a general way, and much must be added, especially as concerns their history. Mr. Gessner in the *Jahrbuch für romanische und englische Sprache und Literatur: neue Folge, III. Band, 2. Heft,* has made a very interesting but somewhat complicated study of *esse,* considered as an auxiliary verb, and has, moreover, noticed important facts that had escaped the attention of Diez. M. Camille Chabanneau in his "*Histoire et Théorie de la conjugaison française*" has devoted to the auxiliaries a few pages, containing valuable suggestions as to their use; but as a general remark it may be said that he has treated this question too briefly. It may be simply because a full treatment was not directly included in the plan of his work. It may be said also that, in a certain way, M. Chabanneau has explained the use of the auxiliaries according to tendencies prevailing in modern French, and has fallen into the error, common to most grammarians, of trying to explain the inconsistent use of the auxiliaries, especially with the so-called neuter verbs, in accordance with modern usage. So far as I am aware, no one has yet tried to explain the difficult problem by a thorough comparison of modern usage with that of Old French.

The main idea of M. Chabanneau is that the auxiliary is nothing but the inflectional part of the main verb. Granting this to be true, such a suggestion is not an historical explanation, and does not account fully for the various and often inconsistent uses of auxiliaries.

Let it be admitted that *ai* and *suis* are merely inflectional

parts of verbs. In "*je suis venu,*" *suis* is considered as the inflectional part indicating the person, the number, and the tense of *venir*. But why do we use *suis* rather than *ai*, which is another inflectional part exercising the same function as *suis* in some other Romance languages? (Cf. Sp. *He venido* as equivalent to Fr. *Je suis venu*.) This is what needs explanation. Whether it is possible to solve this problem I shall not presume to say, but shall offer on this subject the result of my own researches.

My subject naturally falls under three heads, viz.: —

Chapter I. — Auxiliaries used with Transitive Verbs;
Chapter II. — Auxiliaries used with Intransitive Verbs;
Chapter III. — Auxiliaries used with Reflexive Verbs.

Chapter I. — Auxiliaries used with Transitive Verbs.

In comparing the conjugational system of the Romance languages, it becomes evident that in the active voice the use of auxiliaries is very nearly identical.

Fr.	*J'ai chanté.*	Pg.	*Hei cantado* (*tenho cantado*).
It.	*Ho cantato.*	Pr.	*Ai cantat.*
Sp.	*He cantado* (*tengo cantado*)	Wall.	*Am cãntat.*

All the Romance languages use the auxiliary *habere;* two of them may exchange *habere* for *tenere*. This interchange of auxiliary verbs, unknown to the other Romance languages, does not take place under the same circumstances in Spanish and Portuguese. The Spanish uses *tener* with transitive verbs when a certain stress is laid on the action expressed by the verb, whereas in Portuguese *ter* has almost completely superseded *haver*. This discrepancy must not be overlooked, since it shows how independently languages develop.

How is this production of a new auxiliary in the western group of Romance languages to be explained? I do not believe it safe to think with Diez that the Spanish and Portuguese have introduced their new auxiliaries from a

desire to avoid the repetition of *habere*. If such had been the cause in Portuguese and Spanish of that innovation, probably the same cause would have exerted its influence over other Romance languages and produced in them parallel changes. A strong objection to the view of Diez is found in the very history of *habere* in Spanish and Portuguese. Why is it that, during several centuries, the Spanish did not feel the necessity of using *tener* for *haber*, when the latter was used as a principal verb, and of reducing it to a mere inflectional part of other verbs, or to a mere auxiliary, as subsequently happened? If the use of *haber* from the first known period of the Spanish language be exhibited, it will be seen that this verb was treated as a principal, or true verb, side by side with *tener*, and that the instances of its occurrence as such by far outnumbered those of *tener;* that its use went on decreasing steadily, but slowly, till it disappeared (except when used impersonally, or with the force of *deber*) to play the part of a mere verbal inflectional ending. Statistics here will not be out of place, and they will show better than any general statement the fate of *haber*.

Haber.	**Tener.**
El libro de los Reyes d'Orient.	
É hovieron gozo por mira.	Buena casa e fuerte tenemos.
Grant ira avía.	Yo tengo tan manya cuita.
É non ayamos de ellos duelos.	
Que nunqua mas fin non habrá.	
Vida de Santa Maria Egipciaca.	
Si ayades de Dios pardon.	
É los que de Dios non an cura.	
Nos ende avremos grant lacerio.	
Que debes haber honor.	
Doce anyos hovo de edat.	
Sol que aya algo quel dar.	
Ellos avien grant sabor.	
Ella avie cinquanta vivos (amigos).	
Redondas avie las orejas.	La faz tenie colorada.
Si de Dios ayas amor.	
Non ho talente d'aqui estar.	

Haber.	**Tener.**
Yo dieze, he buen corpo.	
Que non he oro ni argento.	Che non tengo mas d'un dobro.
Non he conmigo mas que un dinero.	
Bien sé que habré pardon.	
Un nombre avemos yo é ti.	Mas non tenemos amas una via.
Ave mercet de mi.	
Non es home que paraiso hoviesse.	
Dos panes é medio ha en todo su poder.	Tu tienes un tal tesoro.
Tres panes hovo non grandes mucho.	
Grandes avian las coronas.	
Non avian cura.	
Querie haber proprietat.	
Malas intenciones havien.	
Grant pavor havran.	
No he vestidura ninguna.	
He yo gran repintencia.	
Si la gracia non he.	
En Dios he mi creyenza.	
Ayas tu duelo de mi.	
Piedat de mi cuerpo non avré.	
Que mucho mester lo avemos.	

El Poema del Cid.

Avie grandes cuydados	6		
Tanto avien el dolor	18		
Si oviesse buen señor	20		
Del RRey non avie graçia . . .	50		
A las fijas que ha	384	Tiene dos arcas leñas	113
Avien los de ganancia	465	Dozientos marcos que tenie el rey Alfonso	3246
Myedo yva aviendo	1079		
Valençia que avemos por heredad,	1401	Cinco escuderos tiene don Martino,	187
Todo el bien que yo he		Todo lo tengo delant	1634
E de mi abra perdon	1899		
Non auredes my amor	2029		
Tantos avemos de averes . . .	2529	Tienen buenos cavallos	602

Romancero del Cid.

Hayais la muerte que el hubo .	99	Que tenia mil amigos	5
Que magüer que haya razon . .	101	Si tengo razon ó non	15
Caballeros castellanos.		Que como otro bien non tengo .	39
Mudafar consigo habia	105	Y cinco hijos que tenie	71
		Tiene la culpa e no el dueño . .	85
		El rostro tiene turbado	87
		Que no tienen piedad	97

Haber.	**Tener.**
	Con quien amistad tenia.
	Los de a pie no tienen cabo . . 143
	Y tienan gran presuncion . . . 168
	Testigos tiengo presentes . . . 169

El Libre d'Appolonio.

Avian ventos derechos.	Tenyen viento bueno.
Buena fija avemos.	Tenemos un buen home.
Aviemos tal senyor.	Senyor destas companyas.
Un vestido he solo.	Que no tiene vestido.
Non avie el poder de veyer.	El mar que mengua tuvo leyaltad.
Avia grant repintencia.	
Avia placer.[1]	

Poema de Alexandro Magno.

Avra de mi solas 3	Non tenie todas oras encobadas las manos.
Avian gran alegria 13	Tienes gran méjoria 47
Avie grant corazon 14	Mas yo en mi non tengo el cor que vos tenedes 2123
Non he cura 38	
Avie grandes virtudes 83	
Non avria pavor 92	
Si lo avia el brazo 96	
A tales a los pelos cuemo faz un leon 138	
Avie grant bontat.	
Avian buenos agueros 274	
Tornada non avremos 847	
Los nuestros pensamientos non han stabilidat 940	
Ca non avria tal vulto . . . ombre nacido 1104	Tenie cara alegre.
Avran de vos venganza 1455	
Yo por seso lo avria 880	No lo tengo por seso 879

Vida de Santo Domingo de Silos.

Avie cuerpo fermoso 128	
Non avemos dinero nin oro . . 364	Un caballo tenemos en casa . . 365
Non avras nul trabaio 663	
Avien los companneros grand rancura 293	

[1] I quote from "The Book of Appolonius" these few instances only, having placed opposite each other instances in which *haber* and *tener* are used with equivalent meaning, and where the one could have been used for the other. This will illustrate my position more forcibly. In "The Book of Appolonius" *tener* is already used at least as often as *haber*.

Haber.		Tener.	

Martyrio de San Lorenzo.

Ovo grant alegria	18		
Avie en la cabeza enfermedat . .	35		

La Estoria de Señor Sant Millan.

Avie una azemila	27	El non tenie que dar li	239

Signos del Juicio.

Si io gran set avia	33		
Averan fambre e frio	33		

Cronica del Rey don Alfonso decimo.

Non abrian tiendas ningunas . .	9	Porque tenía derecho e tenía verdad	69
E si poder avían para facer emienda	26	Teniendo gran sentimiento del mal,	69
Donde avrán ellos caballos e donde los avremos nos . . .	52	Todo el pan que tenian	72
Avia grande amistad con don Lope	65	El pesar que tenia por el fijo . .	77
La gran guerra que ovo con el rey Aben	75		

Hurtado de Mendoza.

(*La Vida del Lazarillo de Tórmes.*)

		El tenia una arca vieja	1
		Sin duda debia tener spiritu de profecia	27
		Tenia cargo de proveer.	
		Otra cosa no tenia.	
		Que casi tiene forma de loro.	
		Tenia otras mil formas.	
		El gran miedo que tenia . . .	25
Fingindo haber frio.		Tenia poco caridad.	
		Mejor vida tienes que el Papa.	
		Yo no tengo dineros	38
		Mala medra teneis.	
Yo hube miedo que con aquellas diligencias	49	Harto miedo la tengo.	

Haber. **Tener.**

Antonio de Solis.

(*Historia de la Conquista de Mexico.*)

Porque tenia rara viveza de spíritu, 21
Tenia otras . . . de su proprio natural 9
El poder que tenia el Cardinal . 3
El re don Fernando solo tenia este titulo 3
Tenia en ella tres ó quatro hijos . 16
Donde tenia el vidrio tanta estimacion 5
De que tenemos algunos exemplos, 4

Don Quixote de la Mancha.

Tenie en su casa una ama . . . I.
Tenie el sobre nombre de quijada, I.
En que no tengo aqui dineros . IV.
La hermosura que tengo . . XIV.
Tengo riquezas proprias . . XIV.
No tengas pena, amigo . . . XVII.
El miedo que tienes.
Yo no tengo la culpa . . . . XX.
Tengo aficion, tengo misericordia, etc., etc.

Las Mocedades del Cid.

En mi tendra . . . un fiel vasallo, 120
Tiene la cura a su cargo . . . 157
Tiene razon 272
Honra tiene para todos 321
Pulso tengo todavia.
No tengo mas virtud 2254
Tiene prudencia y valor.
Tiene la leche en los labios . . 785

We see that in Don Quixote and Las Mocedades del Cid *haber* is no longer used to indicate possession. It is used only as an impersonal verb. Cf. Don Quixote:

Habiendo infinitos años de lo uno a lo otro . . . . . XLVIII.
Asegurando le que no *habria* cosa que mas justo le diese que saberlo . XLVII.;

or, in the sense of *deber*, cf. Las Mocedades del Cid:

Que *he* de poner, 710.

On glancing through the foregoing references it becomes evident that *haber* has ceased to be an independent verb in Don Quixote and Las Mocedades del Cid, and is used as such only in a few instances in Hurtado de Mendoza, so that the sixteenth century may be considered as the time of the disappearance of *haber* as a principal verb. In the above quotations I have placed side by side similar sentences, in some of which *haber* is used, and in others *tener*, thus showing that *haber* and *tener* could be used indiscriminately, the one for the other, and that no essential difference existed then between those two verbs. Compare: —

Haber.	Tener.
Avien ventos derechos.	Tenyen viento bueno.
Buena fija avemos.	Tenemos un buen home.
Un vestido he solo.	Que no tiene vestido, etc.

But at the same time it must be noticed that whenever an abstract idea is to be expressed, as for instance in *duelo*, *dolor*, *pardon*, *placer*, *miedo*, etc., the preference is given, in most cases, to *haber*. In fact, I have only noted seventeen instances in which *haber* was used to express a concrete idea, and these mostly in the earliest documents. *Tener* was the verb to express concrete conceptions and material possession, though it was also frequently used to express abstract ideas; so that, in fact, its use was more extensive and varied than that of its rival *haber*. This being the case, *tener* grew in power and in favor, while the reverse was true of *haber*. Little by little *haber* was deprived even of the power of expressing an abstract conception, and left to play the part of a pure inflectional ending. Even here it is rivalled by *tener;* for whenever a particular stress is laid on the verbal notion, *tener* takes the place of *haber*.

Thus, instead of attributing the introduction of new auxiliary verbs in Spanish and Portuguese to a dislike of the repetition of the same verb, it seems more natural to attri-

bute it, first, *to the close relation* of meaning existing between *tenere* and *habere*, which accounts for the indiscriminate use of the one for the other in the beginning; secondly, to the fact that *haber*, by its very meaning, was adapted to the expression of abstract ideas; because, taking into consideration the great importance of that development of new auxiliaries in Spanish and Portuguese, it cannot be admitted that a law of mere euphony, as Diez suggests, has occasioned such a development. New auxiliaries, are not produced to avoid too frequent a repetition of one already existing, but really because new ones, more expressive and more convenient to convey the thoughts, offer themselves.

In tracing the history of *haber* and *tener* in Spanish, the period of the language at which the two verbs had nearly the same meaning and were used almost indifferently in the same sentences has been shown; as also the period at which they became distinct in use, one of them even losing its independent existence. The same phenomenon may be observed in Portuguese. A few instances will suffice.

Haber.		**Tener.**	
Il canzoniere Portoghese (*Monaci's edition*).			
Poys mal nẽ bem de vos nõ ey	18	Tenheu por gram maravilha	110
quanto ben auya perdi	33	Q̃ue nũ ca teneste por ben	128
E po mhavedes g̃ m des amor	100		
Poys nõ auedes merce de mĩ	108		
Q̃ nõ ey en mỹ forza nĩ poder	130		
Cura nõ auedes	366		
Des q̃ mespertey ouiu grã peser.		Mais tenho q̃ xha errou o iograr.	
Si vos pecado avedes	470		
Per sonho mu g̃ m vergonça avedes	982		

In the Canzoniere, as we see, *haver* is by far the most in use; *ter* has rather the meaning of 'esteeming, thinking,' than 'possessing.'

Hardung's Romanceiro Portuguez.

E tres irmãos que havia	159	Uma só filha que tendes	16
Chorava e razaõ havia	161	Uma irmã que eu tinha	31
Já se foram as galleras.		As tres azenhas que tenho.	
Que Dom Duardos havia	161	Tendes los olhos bonitos	97

Haber.	**Tener.**
Antologia Portuguesa.	
Ey gran cuidado 7	Quem frores d'amor tem 14
Que gram saber eu havya . . . 9	Se mais tevesse mais daria . . . 33
Avemos majores coidados . . . 20	Tendes pãe e tendes mãe . . . 65
Nom ha torto 33	
Avian dinheiros 37	
Averia gran prazer migo . . . 48	
Senhoras nam ajaes medo . . . 156	
Has medo que morrerei?	
Hei 164	

Up to this period *haver* is used more frequently than *ter*, as was the case in Spanish. Both bore about the same meaning, and could be used the one for the other in similar sentences. In Sá de Miranda and in Camoëns, the reverse is true. *Ter* prevails, and *haver* becomes more nearly obsolete, and is reduced to play the part corresponding to that of the French verb *avoir* in "*il y a*," or to be a substitute for *convir* or the French *falloir: Hei de partir* (il faut que je parte).

Sá de Miranda (*Os Estrangeiros*).

Deixay me passar que não	
Ey contigo nada 102	Tu tem cuydado de meu . . . 93
Não ajaes vos medo 116	E tem razão 94
Lucrecia avia a minha filha nome 142	E essas não tem spirito 115
	Bons pes tenho 124
	Pouca confiança tens en Lucrecia 129

Os Vilhalpandos.

Mas ey miedo que nos fuya o tempo 264	
E averemos todos conselho . . 273	Não temos tempos 273
Cuidado avia en casa 258	Tenho inimigos 257
Quando aviamos mister mil olhos 226	Não tive mais paciencia . . . 240
	Tenho grande necessidade de ti . 192
	Tinha algun sentimiento de homen 196
	Aiuda tu tens boas pernas . . . 220

Os Lusiadas.

Que tambem della hão medo . II. 47	Victorias que tiveram . . . . I. 3
Portugal houve em sorte . . III. 25	Tenham inveja . . . . . I. 3
Este porhaver fama sempiterna IV. 60	

Haber.

Quando juntas com subita alegria
Houveram vista da ilha namorada . . . . . IX. 51

Tener.

Poder não teve a morte . . . I. 14
Por armas tem adargas . . . . I. 47

Piloto aqui tereis.
Tempo concertado e ventos tinha I. 95
Não teve resistencia . . . . II. 69
O tu que só tiveste piedade . II. 105
O tu que tens humano o gesto III. 127

As I have not had the opportunity to gather instances from a later period of the Portuguese language, I cannot give the exact date of the complete disappearance of *haver* as used to indicate possession. The sixteenth century and the beginning of the seventeeth may be assigned both for Spanish and Portuguese as the declining period of *haber*, though the change of this verb appears to have been slower in Portuguese than in Spanish.

Such has been the history of *haber* and *haver*, *tener* and *ter* considered by themselves. It will now be shown that, considered as mere auxiliaries, they have passed through nearly the same process of development; that is to say, *tener* is used to form the compound tenses in Spanish alongside with *haber*, and *ter* supersedes almost entirely *haver* in Portuguese.

Vida de Santa Maria Egipciaca.

Tanto la avia el diablo comprisa.
Dexaré aquesta vida.
Que mucha la he mantenida.
Quando hovo fecho su jornada.

El Libre d'Appolonio.

Por el amor que yo tengo establecido contigo.
Des aqui adelante lograr quiero lo que tengo ganado 649

Poema de Alexandro Magno.

El infante quando ovo su cosa acabada 147
Quando todas tierras ovo en paz tornadas 223
Pora en Pentapolim lo tengo esleido.
Que esso que tu dices tenia yo esmado 1840

Haber.	Tener.
Et yo si non oviesse abiertos los caminos 236	Ya tenie aguisado naves é marineros.
Tovieron que havian fecho bona conquista 1698	

La Estoria de Señor Sant Millan.

Secund esta noticia que avemos contado 364	
Que todos estos signos que vos visto avedes 403	

El Poema del Cid.

Bien los ovo bastidos 68	
Quando tal batalla avemos arancado 793	
Desta batalla que avemos arancada 814	

Antonio de Solis.

Per que habia muerto su compañero . . . . . XIV.	Las lineas que tenia tiradas . III.
	Cuyo imperio tenia el cielo destinado par engrandecer . . V.
	Ya tenia comprados algunos baxeles . . . . . VIII.
	La confederacion que tenian hecha . . . . . XVII.

Don Quixote.

Tambien como otro que haya gobernado insulas . . . . . X.	Pero ya tenia abierto uno el barbero . . . . . VI.
Has tu visto mas valeroso caballero que yo . . . . . X.	Lo que de la insula me tiene promedido . . . . . VII.
Ya no he leido ninguna historia X.	No se paguen donde tengo dicho X.
De cinco que habia dejado en ella . . . . . XXIII.	Como tenie tambien conecido el humor . . . . . XLV.

Thus we see that in Spanish *tener* is used in compound tenses wherever there is a stress laid upon the verbal idea, or when the action expressed by the verb is considered as not belonging merely to the past, but as continuing in the present. In a word, the tenses compounded with *tener* denote a

more lasting and more emphatic conception. This is, of course, the natural result of the stronger and more concrete meaning of *tener*, as compared with the weaker and more abstract one of *haber*.

A greater predominance has been accorded to the new auxiliary in Portuguese than in Spanish; for while in the latter *tener* allows *haber* to play a very important part in the conjugation of verbs, or replaces it only in special cases, *ter* in Portuguese has become the true auxiliary, and *haver* is very seldom met. The following quotations will show *ter* superseding the auxiliary *haver*, as *ter* principal verb had superseded *haver* principal verb.

Haber.	**Tener.**
Il canzoniere Portoghese.	
Se q̄r do q̄ lhy auia emp̄ stado.	Ora senhor tenho muyt agisado . 220
Nostro senhor se averez guydado 130	Ora tenho guysado de marchar . 952
Gram pecado avedes de mi coytado 131	
P^{r} quā te mal ey levado . . . 145	
Que muyto mel avia jurado . . 145	
Mays p^{r} q̄ mha mentido . . . 250	
Q̄ lheu avya mandado 413	
Muytos anos avemos passados . 455	
Pois me avedes preguntado . . 903	
Ca hū iudeu avedes enganado.	
Hardung's Romanceiro Portuguez.	
O falcão perdido havia 47	Tenho feito juramento 25
Que nunca me has mentido . . 106	Aonde nunca tinha ido.
Ou grande traição ha sido . . . 110	Acorda já bella infanta.
	Triste sommo tens dormido . . 111
	Pois tudo tendes ouvido . . . 113
Antologia Portuguesa.	
Um cantar d'amig ha feyto . . 10	D'aver coita muita teñ'eu guisado . 46
Mays pois m'o houveran dito . . 10	Tinha o cavallo sellado 63
Ca muitos annos avemos passados 20	A morte tenho passada 69
Preguntal-o-ey porque me ha despagado 25	

Haber.		Tener.	
Ca lança ha torta d'un ramo . .	32	E tantos padecimientos tenho passados	87
Que o dormir já o ey perdido .	44		
Eo ouve bem servido	84		
Senhor que nos ha livrado . . .	109		

Haver is more frequently used than *ter* as an auxiliary in the Romanceiro, the Antologia, and especially in the Canzoniere, but the balance is soon changed.

Sá de Miranda (*Os Vilhalpandos*).

Temos gastado muito do tempo .	78
Quantos exercitos tenho eu só por num desbaratados	161
Milagros que já tinhão feitos . .	166
Não sabes tu que tens mudado o costume	216
Escudos que tinha recebidos . .	249
Quantas vezes tenho dito.	
Seu conselho que eu avido tenho	124
O rosto do pay a que tens errado.	
Cuida que me tem alugado . .	144

Os Lusiadas.

Que havendo tanto já que as partes vindo	I. 27	Nas aguas tem passado o duro inverno	I. 28
Do licor que Lyeo prantado havia.		E tendo guarnecida a lassa frota	I. 29
Enchem vasos de vidro . .	I. 49	Ouvido tinha aos Fados . .	I. 31
Hajam os Portuguezes alcançado	I. 74	Da determinação que tens tomada	I. 40
Não nego que ha comtudo .	VIII. 42	Diversos céos e terras temos visto	I. 51
		Como entendido tenho . . .	I. 79
		Tem determinado de vir por agua	I. 80
		Não menos tem mostrado esforço e manha	VII. 71
		Que Amor por grão mercê lhe terá dado	V. 46

Ter in the Lusiadas is used in eighty-eight per cent of the instances of compound tenses.

Haber.	Tener.

Collecção de Tratados (*sixteenth century*) *por Biker.*

Algunos portugueses a que vos alteza tem dado credito . . .	7
Tinha ganado Urmuz	25
Enquirycões que sobre a dita morte tenho tiradas	52
Os portos que tynheis ganhado aos Mouros	25
A ilha de Maquiem que tinhão tomado	52

I have found no other instances of *haver* in the first part of the Tratados.

Chapter II. — Auxiliaries used with Intransitive Verbs.

The question concerning the use of *habere* and *tenere* as independent verbs or as auxiliaries to transitive verbs, is easy to study and to solve. In Italian, French, and Provençal, *habere* is now and has always been the only auxiliary. In the preceding rapid sketch, it has been shown that the use of two auxiliaries in Spanish and Portuguese is due to the antagonism and particular development of two words having originally a similar meaning. But the question of the use of auxiliaries with intransitive verbs is of a quite different kind, and fraught with many difficulties. An historical treatment of that question in French and Italian needs be quite extensive. The task is easier in Spanish and Portuguese, since these languages, yielding more to the power of analogy in their conjugational system than either French or Italian, have employed a single auxiliary for their intransitive conjugation, — at least, during the last three or four centuries.

Let us examine the question in each of the Romance languages.

I. *Auxiliaries used with Intransitive Verbs in French.*

Two auxiliaries are used in compound tenses of the French intransitive verbs: *avoir* and *être*. The derivation of *avoir*

from Latin *habere* is perfectly clear and well understood. The different tenses of the French verb *être* have been taken from those of the corresponding Latin verb, *esse, sum, fui,* etc., save the imperfect *étais* from *stabam,* the present participle *étant* from *stantem,* and the past participle *été* from *statum.* The Old French possessed two imperfects, *ere* and *estoie.* The first was used more frequently in early French documents, and very likely continued to be employed during the next two centuries with decided preference, and we find it still in the prose of Villehardouin and Joinville; but at the end of the thirteenth century *estoie* had become the more important, and in the next hundred years rose to be a rival of *ere,* and even began to usurp its place. Now why did the French reject *eram* for the sake of *stabam?* The reason is similar to that given in explanation of the preference given by the Spanish to *tenere* as contrasted with *habere. Stare* bore about the same relation to *esse* as *tenere* to *habere. Stare* in Latin could be used and was used to indicate existence, being thus synonymous with *esse. Esse* has an absolutely abstract meaning, and expresses a permanent and intimate state or condition of existence of the subject, while *stare* implies a more descriptive, more external, and more transient one. It is especially to this last meaning of *stare* that the Spanish and Portuguese have given a particular development. In French, *stare* has entirely supplanted *esse* in its imperfect use, the imperfect being the descriptive tense par excellence; the keeping of *étant* and *été* is due rather to a lack of corresponding forms in the Latin verb *esse* than to anything else.

The future *ser-ai* is generally taken from *essere habeo.* But *essere habeo* ought to have given us *estr-ai.* This form is actually found in Saint Léger,

tos consilier ia non *estrai* (16),

and in the Alexis,

Chambre, dist ele ia mais n'*estras* parede (29).

Could not, then, *serai* be derived from other sources? We shall see when we come to the Spanish.

After these general remarks on *esse* in French, let us consider the use of the auxiliaries in the intransitive verbs in French.

Grammarians have laid down the following rule concerning the use of these auxiliaries, viz.: With intransitive or neuter verbs the auxiliary *avoir* is used when the verb is considered as expressing an action, and the auxiliary *être* is used when the verb is considered as expressing more particularly a state or condition.

M. Chabanneau adds: "Il n'y a pas à cet égard de règle absolue, non plus que d'usage uniforme dans les langues romanes." Does this principle hold good? When I say, *Je suis venu vous voir; Quand je suis entré le théâtre commençait . . . ; Les alliés sont entrés dans la ville, vers les sept heures,* I use the auxiliary *être,* although the verbs *venir, entrer,* do not denote state or condition, but express clearly the action of coming and entering. Such a law as that stated above is not satisfactory. M. Chabanneau tries to illustrate the rule by the two following examples: *Cette femme a accouché ce matin; Cette femme est accouchée heureusement.* In the first example, says our author, we have in mind the action rather than the result of *accoucher;* but in the second, the result rather than the action. The dictionaries of the French Academy and of Littré say the same thing. It would seem bold to oppose two such authorities. Their statement may be true as regards present usage, but it is not always true in regard to Old French. Before showing what was the case with the Old French, I shall remark that M. Chabanneau, in the two instances above given, limits the first verb by an adverbial modifier, "*ce matin,*" which time limitation obliges us to think rather of the action than of the condition, and modifies the second verb by an adverb of manner, "*heureusement,*" pointing out a condition rather than an action. The example given is evidently chosen to fit the rule. But take the same example, omitting the modifiers referred to above: *Cette femme a accouché d'une fille; Cette femme est accouchée d'une fille.* Both of these expressions are, gram-

matically speaking, correct, and both express an action, showing that there ought to be no difference between the two auxiliaries.

Littré in his dictionary says that "Elle a accouché heureusement," "Elle est accouchée depuis un mois," are faulty locutions. Why? Because the Academy says so, and because M. Littré asserts that *a accouché* expresses the action, and *est accouchée* the condition. Compare parallel expressions in Old French: —

> Ci-dessous gist estendue et couchée
> Une qu'amour si bien vaincue avoit
> Que plusieurs fois elle en fust accouchée. — *St. Gelai*, 197.

According to M. Littré, such a locution also is faulty, because *plusieurs fois elle en fut accouchée* expresses an action, as well as *elle a accouché depuis un mois*. Yet we have a more striking instance of what M. Littré could have called a faulty locution in Joinville, *Histoire de St. Louis*, p. 218: "La Royne acoucha d'un fil qui ot non Jehan. Le jour meism *que elle fu acouchie*," etc. Is not the verb *accoucher* used here in the same way as in Littré's "vicieuse locution," quoted above, and in Chabanneau's "*elle a accouché ce matin*"? Hence it is apparent that the rule requiring *être* to denote condition and *avoir* action is based on modern usage, and, I dare say, has nothing to do with the historical development of the auxiliary usage itself.

It would take too long to quote in detail what other grammarians have said about the use of auxiliaries in the intransitive verbs in French. Suffice it to say that they have divided the neuter verbs of the French conjugation, numbering about six hundred, in the following three classes, viz.: first class, comprising verbs conjugated regularly with *avoir* (about five hundred and forty); second class, comprising verbs conjugated with *être* exclusively, viz.: —

aller	avenir	décéder	disconvenir	entrer	partir	rancir	tomber
arriver	avorter	déchoir	échoir	mourir	provenir	redevenir	retomber
atterrir	choir	devenir	émaner	naître	rabougrir	ressortir	venir

and third class, comprising verbs conjugated sometimes with *être* and sometimes with *avoir*, such as

aborder	apparaître	contrevenir	demeurer	expirer	passer	resoudre
accoucher	baisser	croitre	descendre	grandir	périr	résulter
accourir	cesser	dégénérer	disparaître	monter	rester	vieillir

and some others. As to the verbs conjugated with *être* alone, grammarians maintain that they cannot take the auxiliary *avoir*, because they express nothing but a state or condition. As to the verbs conjugated with *avoir* or *être*, grammarians have used all their critical acumen to explain the use of the one or the other. They have even censured illustrious writers for not adhering to the rules formulated by them. For instance, Racine said in Bérénice, A. II. Sc. I., *Il en était sorti lorsque j'y suis couru.* If we listen to grammarians, Racine was wrong, and ought to have said, *j'y ai couru.* We shall see later whether Racine was wrong or not in saying *j'y suis couru.* Compare *courir* with its compound *accourir. Courir* must take the auxiliary *avoir*, and *accourir* may take either *avoir* or *être.* Why?

M. Girault Durivier, in his "*Grammaire des Grammaires*," p. 472, says: "La raison pour laquelle courir prend toujours l'auxiliaire avoir, et accourir tantôt l'auxiliaire avoir et tantôt l'auxiliaire être est que courir n'exprime qu'un mouvement, qu'une action, au lieu que dans accourir qui signifie se mettre en mouvement pour arriver promptement à son but on distingue deux choses, l'action de se mettre en mouvement pour courir vers un but, et l'état qui résulte de cette action faite. *Dès que je l'ai entendu se plaindre, j'ai accouru à son secours. Je suis accouru à son secours* (would mean, says the author) *j'étais dans l'état qui résulte de l'action d'accourir au secours de quelqu'un.*" The correctness of the author is not to be doubted, but the explanation is questionable. M. Girault Durivier is right, according to the modern tendency which dictates the use of *avoir* or *être* in cases similar to those quoted. But I hardly think that the use of the one or the other auxiliary essentially modifies the verbal meaning. Other Romance languages have, in their early period, made

use of two auxiliaries also; but later on they were confined to one, without losing the power of expressing with one auxiliary shades of meaning that seem to require in French the discriminating use of two auxiliaries. Voltaire said in Orphelin de la Chine, II. 3:—

> Où serais-je, Grand Dieu! si ma crédulité
> Eût tombé dans le piége à mes pas présenté!

Here Voltaire seems to be wrong, because he makes use of the auxiliary *avoir* with *tomber*, and *tomber* cannot take such an auxiliary. So J. J. Rousseau, according to the same grammarian, was wrong when he said *C'est ainsi que la modestie du sexe est disparue peu à peu;* because here *disparaître* expresses an action, and not a state or condition. The same remarks have been made about the use of auxiliaries with other intransitive verbs, such as *périr*, *échouer*, *accoucher*, *cesser*, *demeurer*, *apparaître*, *croître*, *partir*, *rester*, etc. It would take too long to consider these verbs, one by one, and to discuss their special meaning according to the auxiliary with which they are conjugated. I shall only remark that the rules given by the grammarians are not observed in popular usage, where

Il *a* descendu l'escalier en courant

or

Il *est* descendu l'escalier en courant

are used indiscriminately, and convey the same meaning.

The inconsistency of grammarians and the unsatisfactory explanation they have given concerning auxiliaries may serve as an excuse for my trying another explanation, based entirely on the comparison of the modern with the Old French, and for presenting a few considerations on, first, different kinds of verbs; secondly, the origin of the so-called neuter or intransitive verbs; and thirdly, the different kinds of neuter verbs.

First: Different Kinds of Verbs.

The classification here made of verbs is based on the following principle: Every verb is active in its original and

primary meaning, and expresses an action. Every verb has the inherent power of being used as transitive or intransitive; consequently verbs *intransitive* in modern French may have been formerly, and can be used in the future as, *transitive;* verbs intransitive in some of the Romance languages have been, are, or may be used as transitive in some other Romance languages. Compare jouir, prospérer, courir, obéir, dormir, renoncer (*intransitive in French*), and godére, prosperare, corrére, ubbidíre, domíre, rinunciare (*transitive in Italian*).

Ex. — Ed allora gode la fortuna (Boce.).
Ex. — Mal hai i tuoi maéstri ubbidíti, etc.

A verb is not necessarily transitive or intransitive; it is made the one or the other according to the development of its own meaning, and according to the peculiar genius, stage, and tendency of the language in which it is used. Hence all verbs in their nature are active verbs, and express an action; in their use they are divided into two classes, viz.: transitives, affecting an external object; and intransitives, or semi-transitives, affecting the subject. For brevity's sake, the verbs of the first class may be called *objective-transitives;* and those of the second, *subjective-transitives.* The verbs of the first class, expressing an activity directed towards an external object, are conjugated with *avoir;* the verbs of the second class, expressing an action affecting the subject itself, partake of the nature of passive verbs, and thus take *être.*

But later on the second class of verbs was developed into two classes: subjunctive transitives fully expressed: *Je me repens;* and subjunctive transitives elliptically expressed: *Je meurs* (for *Je me meurs*). Compare Spanish, Italian, Portuguese.

Secondly: Neuter Verbs. Their Origin.

To the second of the above classes belong the so-called neuter verbs; they are nothing but elliptical reflexive verbs, or subjunctive transitives elliptically expressed. As a consequence, they form in several cases their compound tenses with *être,* according to the principle described above.

Thirdly: Different Classes of Neuter Verbs.

With reference to conjugation, neuter verbs must be divided into three classes: —

First, neuter verbs, the radical significance of which being still felt, are conjugated with *être;* not at all because they express a state or condition rather than an action, but because they are elliptical reflexive verbs.

Secondly, neuter verbs still under the influence of their origin, but yielding in a great measure to the effect of what I should call the Romance tendency. Under that tendency Romance languages have been substituting, in a less or greater degree, active and reflexive for passive expressions, and active verbs for passive verbs; hence active auxiliary for passive auxiliary. As a consequence, the verbs under the influence of these two principles will have a wavering use of the auxiliaries *être* and *avoir*, with a slight preference for *avoir*.

Thirdly, neuter verbs subject to the influence of the Romance active tendency, and taking the auxiliary *avoir* exclusively. This third class of neuter verbs is the only class to be found at present in some of the Romance languages.

I will now take a certain number of verbs belonging to the first class, and prove that they have been used in the Old French as true reflexive verbs. For instance, with *aller*, *Je suis allé* is equivalent to *Je me suis allé*. The study of the verb *aller* in Old French literature is very interesting. The frequency of its use may be said not to be exceeded by that of any other verb. When the different ways in which *aller* is conjugated are observed, the student is at no loss to explain its auxiliary, and can no longer say with grammarians that *aller* takes the auxiliary *être* because it expresses a state or condition; as if any verb could express more clearly an action than the verb *aller*. This verb was used, first, in the reflexive form with *en: s'en aller;* secondly, in the reflexive form without *en: s'aller;* thirdly, in the so-called neuter form with *en: en aller;* fourthly, in the so-called neuter form without *en: aller*.

Examples of the First.

Petrus dalo fors s'en aled	Pass. Chr.	197
Tot s'en vait declinant	Alexis	9
Puis s'en alat en Alsis la cité	Alexis	86
Com s'en alat et com il s'en revint	Alexis	285
Franc s'en iront	Roland	50
Li empereire s'envait desuz un pin	Roland	168
Que en France m'en alge	Roland	187
S'en vait a son ostel	Roland	342
S'en est alez li reis	Roland	501
Et lors li consaus s'en rala parler an Soudanc	Joinville	186
Et vous commandons que vous ralez vers notre Seignour	Joinville	248
Signor, je m'en vois outre mer	Joinville	64

Examples of the Second.

Que a pou se ala que il ne nous afondrerent en l'yaue	Joinville	168

Examples of the Third.

Et en alat en Alsis la citet	Alexis	382
Alez en est en un vergier	Roland	11
Desuz un pin en est li roi alez	Roland	165
Seignurs vous en irez	Roland	360
Li Rois d'Ermine en ala au roy des Tartarins	Joinville	78
Tu en iras a ton roy	Joinville	264
Il en ala grant pas par mi son vessel	Joinville	88
Et bien toute la voie que li connestable et je en alames amont	Joinville	136
Si nous en irons tuit en paradis	Joinville	174
Qui en fut alez après les Sarrazins	Joinville	108

Examples of the Fourth.

Ist de la nef e vait edrant a Rome	Alexis	211
Est alez conquérant	Roland	553
Si l'est alez ferir		
Tant que il veist que sa chevalerie feroit, qui aloit a terre	Joinville	6
Mais je dont se je aloie vers vous	Joinville	216
Car nous sommes alei contre le commandement Mahomet	Joinville	202
Car vous estes alei la sus sans mon commandement	Joinville	316
Qui avoit appelei contre li et estoit alez à Rome	Joinville	370

Cf. Italian *andarsene, andarne, andarse, andare.*

Examples of the First.

Tu te ne andasti e si rimasé seco	Petrar. S.	204
Secando se ne va l' antica prora	Dante Inf. VIII.	29
Ora sen va per uno stretto calle	Dante Inf. X.	1

Vattene omai . . . . . Dante Purg. XIX. 139
L' una gente s' en va l'altra s' en viene . . . . . Dante Purg. XXVI. 46
Di Tebaïda andati se n' erano . . . . . Bocc. Dec. . . 3. 9

Examples of the Second.

E in su una sua nave . . . n' andò in Cipri . . . . . Bocc. Dec. . . 3. 7
Il peregrino tantosto n' andò a quattro fratelli . . . . Bocc. Dec. . . 3. 7
Sappiendo verso che parte n' era la fregata andata . . Bocc. Dec. . . 5. 6

Examples of the Third.

E s' andarono tutti allo cortiglio . . . . . Matteo Spinelli 1093
Ma vassi alla via sua . . . . . Purg. XXV. . . 5

Examples of the Fourth.

Da Foggia andao le Re . . . . . Matteo Spinelli 1093

Remark. *Aller* was sometimes also conjugated with the auxiliary *avoir*, just as formerly in Italian, and now in Spanish. Compare

Quant j'oi un poi avant alé . . . . . Roman de la Rose 5
(Ital.) Egli â andato a lui (common speech).

With *arriver, je suis arrivé* is equivalent to *je me suis arrivé.*

(*Arriver used as active verb.*)

Cil a sa nef apareilée; entrent dedenz
Il les mena tant qu'al rocher les arriva . . . . . Greg. le Gr. . . 104

(*Arriver used as reflexive verb.*)

S'en alla outremer . . . et s'ariva a Acre . . . . . Chron. d'outr.
Et ayant dit cela s'arriva contre le corps en la fosse . . Matt. de Coucy . 738

Compare Italian *arrivarsi.*

With *entrer, je suis entré* is equivalent to *je me suis entré.*

Si s' en intrat en un moustier . . . . . St. Léger . . . 66
As porz d'Espeigne s'en est entré Rolant . . . . . Ronceval . . . 14

Compare Italian : —

Non potea riveder d' ond' io m' entrassi . . . . . Purgatorio XXVIII. 24
Da lui nè dall' amor che in lor s' entrea . . . . . Parad. XIII. . . 57
Ignudi amenduni se n' entrarono nel bagno . . . . . Bocc. Dec. . . 8. 10

Compare Provençal: —

Ab aquestas paraulas lo rey s'en es intratz.

With *mourir, je suis mort* is equivalent to *je me suis mort.*

Por o s furet morte a grant honestet . . . . . Eulalie.
Il se fut morz, dam i fud granz . . . . . St. Léger . . . 51
Et disoit que li ennemis si soutilz que quand les gens se meurent, il se travaille tant comme il puet que il les puisse faire mourir . . . . . Joinville . . . 24
E alors elle se pasma, et cuida l'on qu'elle fut morte et li Roys qui cuida qu'elle se mourust retourna . . Joinville . . . 332
Qu'ele li dist qu'il li donroit
S'amor, ou ele se morroit . . . . . Roman de la Rose 48
Les uns mouroient sans parler les autres se mourroient en parlant . . . . . Rabelais

Here it may be remarked that the Old French uses *se mourir* in Eulalie and St. Léger to express the very act of dying, whereas in modern French *se mourir* means 'to be agonizing' (*Madame se meurt, Madame est morte.* — Bossuet). Both meanings are found in Joinville (see above). A very important fact to notice is that *mourir* could be used not only as a reflexive verb, but also as an active verb; and that not only in the French, but in all the Romance languages. Littré, in his long article on *mourir*, says nothing about the active meaning of this verb.

Or véez vous bien que je vous eusse bien mort, si je vousisse . . . . . Joinville . . . 348
Toute voiz ce ne leur eust riens valu que li Turc ne les eussent touz mors ou champ . . . . . Joinville . . . 152
Mes ce m'a mort que poi me dure . . . . . Roman de la Rose 81
Or se ce non vous m'avez morte . . . . . Roman de la Rose 188

Compare Italian: —

Ne necessità conviene que la gentilissima Beatrice alcuna volte si muoi . . . . . Vita Nuova XXIII.
Per una donna que s' era morta . . . . . Vita Nuova XXXIII.
Per paura morte s' erano . . . . . Bocc. Dec. . . 2. 7
E dopo alcun dì arrabiato si mori . . . . . Dino Compagni . 506
Ettore avendo morti grandissima quantità di Greci . . Ricardo Mal. . 885
I quali furono morti et cacciati . . . . . Ricardo Mal. . 996
Muorsi si subito nelle sue braccia . . . . . Bocc. Dec. . . 3. 6

Nella sua vista, e cotal si moria . . . . . Purg. XVII. . . 27
Sanar le piaghe c' hanno Italia morta . . . . . Purg. VII. . . 95
Per lo giusto disdegno che v' ha morti . . . . . Parad. XVI. . . 137

Compare Provençal : —

Quar non puesc vezer qui t'a mort.

With *naître, je suis né* is equivalent to *je me suis né.*

Et s'est née et estraite de si bonne lignée . . . . . Bert. 72

Compare the Wallachian, where *naître* is only reflexive.

Eŭ m'am născut la anul 1860.

With *partir, je suis parti* is equivalent to *je me suis parti.*

Et quant li frère s'en furent parti . . . . . Joinville . . . 14
Que oncques ne s'osa partir tant que il fut accordet au conte de la marche . . . . . Joinville . . . 56
Et lors je me parti de Joinville sanz rentrer ou chastel jusques à ma revenue . . . . . Joinville . . . 68
Mal apertement se partirent li Turc de Diamiete . . . Joinville . . . 90
Mort le trébuche, l'ame s'en est partie . . . . . Ronc. 58
La parole est finée et li conseil se part . . . . . Saxe XXIX.
Se partit du dict lieu . . . . . Pantagruel II. . 5
Se furent de Israël partiz . . . . . Livre des R. . . 48
Dont il s'estoient folement parti . . . . . Guillaume de Tyr. 103
Et se partent des cors les ames . . . . . Roman de la Rose 246

Compare Italian : —

Poiche la gentilissima donna fu partita . . . . . Vita Nuova XXX.
Messer Francesco de Loffredo partiò de Tarento . . . Matteo Spinelli . 1605
Alcuni si sono partiti del suo proprio parlare . . . . Della Volg. Eloq. 731
Che riguardasse se partito si fosse . . . . . Bocc. Dec. . . 1. 7
Rimanete con Dio che io mi parto . . . . . Bocc. Dec. . . 4. 1
Quando tre ombre insieme si partiro . . . . . Infer. XVI. . . 4

With *tomber, je suis tombé* is equivalent to *je me suis tombé.*

I was unable to find a reflexive example of *tomber.* Du Cange says: "tumber vero active sumitur pro dejicere, vulgò faire tomber." Hence, if *tomber* was used formerly as a transitive verb, there is no reason to suppose that it could not have been used as a reflexive verb.

Instances of *tomber* used as a transitive verb : —

Mes la contraire et la perverse
Quant de leur grant estat les verse
Et les tombe autor de sa roe . . . . . Du Cange.
Icellui Giraut donna au dit Manson un si grand coup sur
l'espaule qu'il le tomba par trois fois en la charrière Du Cange.
Puis le tombent en un fossé . . . . . Roman de la Rose 52

Now it is clear that Voltaire, in saying, "Eût tombé dans le piège," was not wrong, since the verb *tomber* is conjugated with the auxiliary *avoir* in Old French, and bears an active meaning. The sentence of Voltaire, though obsolete in the time he wrote, had nothing wrong in itself.

With *venir, je suis venu* is equivalent to *je me suis venu.*

The reflexive form of this verb is generally found in connection with *en.* But *se venir* and *s'en venir* must be regarded, just as *s'en aller* and *s'aller* were regarded ; that is to say, *en* does not change the reflexive nature of *venir* and *aller*, but when that *en* is found in a sentence in connection with *venir* and *aller*, it controls and necessitates in most cases the use of the reflexive form, which, however, is perfectly independent of it. It is only necessary to compare the instances cited above, of *s'aller*, and the Italian *venirse*, or *venirne*, and *venirsene.*

Ma viensi per veder le vostre pene . . . . . Inf. XII. . . . 21
Ma vienne omai chè giá tiene 'l confine . . . . . Inf. XX. . . . 124
Venir sen deve giù tra' miei meschini . . . . . Inf. XXVII. . . 115
L' un poco sovra noï a star si venne . . . . . Purg. VIII. . . 31
Sen venne suso ed io per le su' orme . . . . . Purg. IX. . . 60
Io mi vengo a star un po teco
Si vinse il peggiore . . . . . Ricardo Mal. . 990
Ove in Leone ad incontrar si venne Orlando . . . . Orl. Furi. . . 46. 21

Let us now examine a few of those verbs that take either *être* or *avoir*, according to their peculiar meaning, as grammarians say. I hold, on the contrary, that when those neuter verbs take *être*, they are purely elliptical reflexive verbs, just as those of the above list ; and that when they take *avoir*, they follow the general tendency of development that pushed the Romance verbal-system towards an active auxiliary. The Old French used such forms as *être apparu* and *être péri* very

frequently, whereas the modern French avoids them and generally prefers the active auxiliary form.

With *apparaître*, *je suis apparu* is equivalent to *je me suis apparu.*

Si s'aparust et sor mon chief me mist sa main . . . . Rom. de la R. 10,347
Tout fust il ainsi que nus ne se fust aparus contre eux . Beau. 54
La deesse Vesta s'apparust à lui . . . . . Amyot. Rom. . 4
Jésus Christ glorieux s'apparut . . . . . Fléchier.
L'ange du seigneur s'apparut à lui . . . . . Volt. Phil. V. . 110
De rechef s'apparut Dieu en Silo . . . . . Livre de Rois I.
Saint Andrius apareuz a lui . . . . . Guill. de Tyr. . 208

With *cesser*, *la pluie est cessée* is equivalent to *la pluie s'est cessée.*

Quand ce cri fut repandu parmi l'ost tous se cessèrent . Froissard II. . . 215
Je me veux cesser de parler de faitz d'Angleterre . . . Commine . . . 3. 7

With *croître*, *la rivière est crue* is equivalent to *la rivière s'est crue.*

The only example found of *se croître* is in Lacurne's Dictionary. *Se croistre*, he says, is used for *s'accroître* in Pérard's Histoire de Bourgogne. Very likely the reflexive use of *croistre* has been transmitted to the compound *s'accroître.* Compare the active use of *crescere* in Italian.

Madama voi dalla povertà di mio padre . . . come figliuola
cresciuta m' avete . . . . . Bocc. Dec. . . 2. 8
E che più volte v' ha cresciuta doglia . . . . . Inf. IX. . . . 96

With *demeurer*, *je suis demeuré* is equivalent to *je me suis demeuré.*

The first meaning of *demeurer* was to 'stop at,' to 'delay.' (See instances of *se demeurer* in Lacurne's Dictionary.)

E si li estoient chil doy roy si prochain que a envis s'en
mesloit et a envis s'en demoroit . . . . . Froissard II. . . 481

Compare Italian *dimorarsi:* —

Mi sono dimorato in Parigi sei anni.

With *descendre, je suis descendu* is equivalent to *je me suis descendu.*

Si se descendirent et se firent leurs logis sur ces beaux prés sur la rivière de Dordogne . . . . . Froissard II. . . 3
Et loerent au roy que il se descendit de la nef là où il estoit Joinville . . . 342
Il n'y avoit en la mer ilecques près ancun port la où il se peut descendre . . . . . Joinville . . . 28

With *courir, je suis couru* is equivalent to *je me suis couru.*

We have seen that Racine's expression, *j'y suis couru*, has been condemned by grammarians. But M. Littré, in his Dictionary, has justified the great poet in the following manner: "Les Grammairiens condamnent cet emploi et disent que *courir* exprimant une action ne peut recevoir l'auxiliaire être. Mais venir exprime aussi une action et ne s'en conjugue pas moins avec l'auxiliaire *être*. Ici encore l'usage est pour l'auxiliaire *avoir*. L'auxiliaire *être* est très peu usité, mais il est également correct, dans l'ancienne langue il était de plein usage." Here M. Littré recognizes the fact that the auxiliary *être* is as justifiable as the auxiliary *avoir* in that neuter verb, and that everything depends on usage, — rather, I should say, on the development of the language, as it is very clearly seen in the case of *venir* and *courir*. Consequently M. Littré ought not to defend, as he does everywhere in his Dictionary, the idea of grammarians who say that neuter verbs are conjugated with *être* when they express a state or condition, and with *avoir* when they express an action. The rules of grammarians are rules of assertion and not of investigation, made for the present stage of the language without any reference to the past. Hence such rules are not always observed by great writers, nor by the people either. Racine was right in that particular instance, and, according to our own theory, *j'y suis couru* stands for *je m'y suis couru*. Compare the Old French: —

Roland regarde puis (se) lui est couru . . . . . Roland . . . 153
Chascuns y est couru la merveille esgarder . . . . . Berthe III.
Ils se coururent sus l'espée au poing . . . . . Montaigne I.. . 256
Il s'en court en disant: A Dieu me recommande . . . Régnier St. XI.
Le pauvre homme s'en courut . . . . . La Fontaine.

With *disparaître, je suis disparu* is equivalent to *je me suis disparu.*

J. J. Rousseau's *La modestie du sexe est disparue peu à peu* is equivalent to *s'est disparue peu à peu.* Compare also Calvin : —

Jésus Christ ne s'est point fait invisible mais seulement s'est disparu.

Hence *se disparaître* was used even in the Middle French, and the grammarians have condemned Rousseau wrongly, as they ought to have seen in his supposed mistake a remnant of the old style.

With *monter, je suis monté* is equivalent to *je me suis monté.*

Si vint tout à pied Messire Hervé jusqu'à Abbeville, là se montèrent . . . . . Froissard II. . . 214

With *passer, je suis passé* is equivalent to *je me suis passé.*

Outre s'en passe . . . . . Ronc. 65
Si tost comme il le sot il l'alla querre, il s'en passa sans amende . . . . . Beau. XX. . . 57

With *périr, je suis péri* is equivalent to *je me suis péri.*

Périr was used in the Old French in the active voice, as well as *mourir.* Compare : —

Pour Dieu ne perissons mie la grant honeur que notre sire nous a faite . . . . . Villehard. LXXXIX.
Tellement qu'elles périssent tout ce qui se trouve en ce destroit . . . . . Du Bellay IX. . 296
Sire, ces seigneurs qui ci sont arcevesques, évesques m'ont dit que je vous deisse que la crestienté se périt . Joinville . . . 200

Thus have I tried in the preceding pages to find instances in which verbs now used as neuter were formerly reflexive and therefore conjugated with the auxiliary *être.* Such instances certainly suggest a more satisfactory solution of the question of the use of auxiliaries in neuter verbs than the one proposed by grammarians and M. Littré, especially by the latter when he says of *périr,* "avec l'auxiliaire *être, périr* exprime plus particulièrement l'état, mais cette nuance n'est

pas toujours observée." It appears, on the contrary, that with the auxiliary *être*, *périr*, as well as all the other verbs examined above, is of reflexive origin, and that with *avoir* they constitute a development towards active forms. All shades of meaning attributed to neuter verbs in modern French, according as they are conjugated with *avoir* or with *être*, may be assigned not only to a refinement of thought and of style, but also to the subtle distinctions of grammarians.

In the above considerations I have taken account only of such neuter verbs as either retain *être* exclusively, or take both *être* and *avoir*, making no mention whatever of those conjugated with *avoir* alone. A couple of instances will show that those also were used reflexively.

Dormir: —

Charles se dort qu'il ne s'esveillet mie . . . . . Rol. 724

Pleurer: —

Amarement mult se ploret . . . . . Pass. du Christ . 198

II. *Auxiliaries used with Intransitive Verbs in Italian.*

Since the Italian system of conjugating the neuter verbs presents about the same character as that of the French, I have thought proper in the preceding to bring such parallel instances of Italian as I might find directly under those of the French. This was done to illustrate the one language by the other, and to bring stronger proofs to my assertion that neuter verbs conjugated with *esse* in either of these languages are merely remnants of reflexive verbs elliptically expressed. I may add here that in Italian authors like Matteo Spinelli, Ricordamo Malespini, Dino Compagni, Dante, Boccaccio, and Ariosto, this alternating use of elliptical reflexives with full reflexive verbs is more frequent than in any French author I have read.

The Italian still uses the auxiliary *essere* with a few neuter verbs, where the French now uses the auxiliary *avoir*. I have found two striking instances of such difference in *fuggire* and *vivere*.

Sono fuggito is equivalent to *mi sono fuggito.*
Compare : —

S' erano fuggiti . . . . . Hist. Fior. Bk. IV. 40
La o altrove si fosse fuggito . . . . . Bocc. Dec. . . 2. 2
Ridendo gli contarono perchè s' eran fuggiti . . . . Bocc. Dec. . . 2. 5

Compare : —

S'en estait fuïz . . . . . Guill. de Tyr. . 468
Lesquels estoient fuis . . . . . Rab. Garg. . 41. 276

Sono vissuto is equivalent to *mi sono vissuto.*
Compare : —

Numitore si vivette nel suo campo . . . . . Ricord. Mal. . . 886
Gli nomini si vivono quietamente . . . . . Machiavelli del Pr. III.
La donna onestamente con lui si visse . . . . . Bocc. Dec. . . 3. 9
Già mi vivea di mia sorte felice . . . . . Orlando F. . 13. 5
Non so, risposi lui, quant' io mi viva . . . . . Purg. XXIV. . 76

Compare Old French : —

Par les pasture de quoi ils se vivent . . . . . Guill. de Tyr. . 77
S'il n'a dont il se puisse vivre . . . . . Roman de la Rose 19
Et se font povre et si se vivent . . . . . Roman de la Rose 5

III. *Auxiliaries used with Intransitive Verbs in Spanish.*

Just as we saw the Spanish using two verbs to indicate possession, so we shall find that it makes use of two different verbs to indicate existence : *esse* and *stare.* As to the relation of *esse* to *stare*, I shall refer to page 16, where the relation between the French imperfects *ere* and *estoie* was spoken of. The Latin *stare* furnished all the forms of the Spanish *estar*, but *esse* did not furnish those of *ser* in the same measure. The infinite *esse* and the subjunctive *sim* have been lost in Spanish, and the corresponding forms, *sedere* and *sedeam*, have been taken from a verb whose transferred meaning denotes existence, just as *stare* does. In the oldest documents of the Spanish no traces of *esse* and *sim* can be found, and if those forms were used at all, it must have been at a period antedating those documents.

Compare: —

Bien seya castigado	Vida de Santa M. Eygp.	
Seya dixeron todos puesto e otorgado		
Devie seyer en vida tal ome adorado	Libre d'App.	91
Devemos seyer todos firmes en la sua tenencia .	Libre d'App.	93

It is, in fact, a question whether, in Old Spanish, the whole verb *sedere* was not used in all its tenses to denote existence, for besides the infinitive *sedere* and the present subjunctive *sedeam* and also the gerund *sedendo*, I have found instances of the indicative present *sedeo*, and especially of the imperfect *sedebam*.

De san Millan criado en la su merced seo	Vida de St. Dom. . .	757
Sennores e amigos quantos aqui seemos.	Est. de St. Millan .	317
Mientre que esta duenna en tal caita sedie. . . .	Vide d. S. D. d. S. .	562
La casa de Onorio que sedie escarnida	Est. de S. Mill. . .	198
Como era mal apriso sedie fuert embargado . . .	Est. de S. Mill. . .	333
Sedie una eglesia non mucho aredrada	Milag. de N. S. . .	415
Sus gentes mui devotas sedien en oracion	Milag. de N. S. . .	415
Quando esta palabra udieron los trufanos		
Que sedien mas rabiosos que carniceros canes . .	Duelo de la Virg. .	39
Seyendo aun el rey en la batalla	Chro. del Rey Alp. X.	52
Seyendo estas compañias llegadas	Chro. del Rey Alp. X.	27
Hy sedie una mesa de cobre bien labrada	Sacrif. de la Misa .	9

Now, if there can be no doubt that the Spanish *ser* is a contracted form of *sedere*, and that the future *seré* is for *sedere habeo*, could not the French *serai* be derived from the same source; and ought not *estrai* to be considered as the only form coming from *essere habeo?* Compare page 16.

After these few remarks about *ser* and *estar*, it will be shown how they were used in the oldest period of the Spanish language.

It is recognized that in Spanish *ser* expresses what is essential and permanent, whereas *estar* expresses an accidental and transitory state. Indeed, this distinction may be observed to have existed from the recorded beginning of the language. There may be some instances in which the difference is not observed; but, I dare say, they are very few.

Ser.	Estar.

El Libro de los Reyes d'Orient.

Tu que major e mejor eres.
Dios es sin dubdanza.

Vida de Santa Maria Egipciaca.

Fija tu eres de gran natura.
Di me donde eres.

Porque estas en mala natura.
Ó como estas.

El Libre d'Appolonio.

Tu eres la raiz, tu fija el cimal.
Rey yo fui esse é fuy verdadero.

Antiocho estando en tamanya error.
Estaba en tal guisa.
Mientre ellos estaban en esta encencia.
Dixo el marinero que en somo estaba.
Las ondas mas pagadas estar no podien.
Desuyó le sangre que estaba enagada.
No sabie do estaba.

Poema d'Alexandro Magno.

Tornal como se fusse su mortal enemiga 2193

Que escusa non ayas porque estas desarmado 123
Quando estas irado as fiera catadura 212
Que estaban lidiando a una gran pressura 500

El Poema del Cid.

Yo so Ruiz Dias 721

Estando en la cruz 351
Tres reyes veo de moros derredor do mi estar.

Cronica del Rey Alfonso X.

Veyendo como era de tan poco poder . . . . . II.
Entonces era vivo el rey don Jaimes . . . . . VIII.
Que era tuerto de un ojo . . . XIII.

é á los que estaban y con él . . X.
a Toledo do estaba el Rey Alfonso.

La Vida del Lazarillo de Tormes.

Quien ere su padre.
Era huerfano.
Ser la misma avaricia.

para los que estaban de parto.
pensando que yo estaba entendiendo 14

Ser.		Estar.	
	Don Quixote.		
Que era hombre docto	I.	Estaba confuso mirando lo . .	III.
Aquel idolo de Mahoma que era todo de oro	I.	El estaba alli pronto paro obedecerle.	
Hombre que por ser muy gordo era muy pacifico	II.	cuando estaba muy cansado . .	V.

Now let us consider *ser* and *haber* as intransitive auxiliaries. The Spanish conjugated its neuter verbs or its elliptical reflexives with *ser* and *haber*, mostly with *ser*, till the beginning of the thirteenth century, when *haber* began, little by little, to supersede *ser*, and at last, about the middle of the sixteenth century, completely displaced it. It was about the same period of time that *haber* ceased to be considered as a principal verb; so that we may consider the beginning of the sixteenth century as the period when the tendencies of the Spanish language to use *haber* became exclusive.

Ser.	Haber.
El Libro de los Reyes d' Orient.	
a Jesu Christo que era nado.	Quando Erodes sopo.
El angel fue a él venido.	Que por hi non le han venido.
Vida de Santa Maria Egipciaca.	
En Alexandria es venida.	
En tal hora hi fue entrada.	
Quando fue passada.	
Al monasterio son tornados.	
El Libre d' Appolonio.	
Ya es del siglo passado.	Porque por muchas tierras no avia andado.
porque era hi venido.	Avian de la marina gran partida andada.
Si entonces fuesse mortuo.	Quando toda la hove la ribera andada.
Poema de Alexandro Magno.	
El infante fue venido 107ᵇ	Avie tan fiera lluvia ante noche passada 1883
Alegre fue el rey quando fue arribado 272	

Ser.	Haber.

El Poema del Cid.

Car por il agua a passado . . . 150

Cronica del Rey don Alfonso X.

E soy aqui venida a pedirle ayuda . . . . . XVII.
Era venido a recebir . . . . XVIII.
Despues que Don Nuño fue partido 24
Seyendo estas companias llegadas. 27
Supo de commo Aben Yuzaf era passado 62
Dos caballeros hermanos que havían passado 63
Aquel camino que aveva ido antes 77

Romancero del Cid.

A tiempo eres venido.
Amigos salidos somos 119
Por su tiempo es pasado . . . 93
Nuevas al Cid son venidas. . . 187
Cuatro veces he venido 16
Un romero habia llegado.
Y lides do habeis entrado . . . 46
Venido han en perdicion . . . 46

Until now, neuter verbs conjugated with *haber* and *ser* have been found, but hereafter the auxiliary *haber* is universally met in compound tenses of neuter verbs.

Hurtado de Mendoza.

El qual habia muerto en la batalla. 10
Mucha gente que le habia ido a socorrer 30
los dias que no habia muerto.
de mi amo habia ido fuera del lugar 37
porque no podria ménos de haber caido 47
Etc.

Antonio de Solis.

Creyendo que . . . la voz que habia corrido . . . . . III.
Cuyo suceso habia llegado ya a sú . . . . . VI.
la brujula y carta que habian decaido . . . . . XIV.

Ser.	**Haber.**

Don Quixote.

No habia pasado de hidalgo . V.
Esta noche me ha sucedido una de las mas . . . . . XVII.
El miedo que habia entrado en su corazon.
he ya que hemos caido en sospecho . . . . . XXIII.
al cual ya habia venido . . XXIV.

Las Mocedades del Cid.

He venido. Ha venido? He venido.
Ya he caido en tu pesar . . . 1574

To come back to my theory and prove that the above neuter verbs are merely elliptical reflexives, I shall give a few instances where the same verbs are used as full reflectives. For example: —

Estos reyes son se tornados	Reyes d'Orient.	
Quando desto te avrás partido	Santa M. Eg.	
No pudo estar que non se iria	Santa M. Eg.	
El obispo don iheronimo se entrava	Poema del Cid . .	1579
Entraron se en la cibdad	Poema del Cid . .	2896
Y de secreto se ha ido	Romancero del Cid .	VII.
Encendieron su fuego que se les era muerto . .	Libre d'Ap. . . .	458
De mi mal se parte	Alexandro	118
Ya se iban las naves.	Alexandro.	
Si de nos non te partes avras mal ventura . . .	Alexandro	120
Que se iba para Burgos	Alf. X.	8
Commo do Fernando se venia	Alf. X.	66
Los moros que se iban con el	Alf. X.	74
Come la noche se venia, entonces se entró en la iglesia	Vida del Lazar. . .	55
Que de mi y de ellos se habio ido	La vida del Lazar. .	85
Para el gafe se venia. En terra se descendia . .	Rom. del Cid . . .	XXII.
Mas en castillo se entraba	Rom. del Cid . . .	31
A vos me vengo	Rom. del Cid.	
Se habia venido a recoger aquel su castello . . .	Rom. del Cid.	
Donde vieron que se habia entrado	Rom. del Cid . . .	15

IV. *Auxiliaries used with Intransitive Verbs in Portuguese.*

It has been shown above that in Spanish *ser* expresses what is essential and permanent, whereas *estar* expresses an accidental and transitory state. The same thing is true of the corresponding auxiliaries in Portuguese, and a rapid glance at the earliest and most important written documents of the Portuguese language will be proof sufficient that such is the case.

Ser.	**Estar.**
Canzoniere Portoghese.	
Si foss eu rey 37	Poys ante vos estou aqui . . . 141
mays de tãto seede sabedor . . 1220	
Hardung's Romanceiro Portuguez.	
Era esse dom Beltrão 6	como estas bem assentada.
Pensando que era verdade . . . 31	Chegando aonde elle estava . . 10
tu és uma mana minha 64	Zamora estava cercada 17
	já esta vam en mar largo.
Antologia Portuguesa.	
E se era vos c'ant'o prazo saido . 15	Yo me estaba em Coimbra . . . 76
Mélhor é de seer traedor . . . 34	Despois de estar já vestido . . 258
E em que sempre cuidando seyo . 43	
Sá de Miranda.	
E este teu amigo he tão meren-	Estas tão demudado 192
corio vil 144	Estava como fora de mim . . . 201
Os Lusiadas.	
	O mouro astuto está confuso . I. 62
	O capitão que a tudo estava
	attento . . . . . I. 98

Now *ser* and *ter* will be considered as intransitive auxiliaries.

The Portuguese auxiliaries follow the same development and undergo the same changes as their Spanish equivalent, and, as far as I can make out, at about the same period.

Ser.	Ter.

Canzoniere Portoghese.

Por em mais en q̄ mal dia fui nado 17
Por semp̄ sodes de mi partido . 834
E se nō fosse antexp̄o nado . . 1013

Hardung's Romanceiro.

Chegadas são as galleras . . . 13
Saiban quantos são nascidos . . 15
Que meu pae que era morto . . 100
Mas anno e dia é passado . . . 113
Agora a saber son vindo . . . 7^2

Sá de Miranda (*Os Estrangeiros*).

A tanto são chegados 78
Pois tu es vindo a salumento . . 118
ja tudo esso he passado a Portugal 147

Os Lusiadas.

São chegadas . . . . . I. 78
Sendo o capitão chegado . . I. 104
A Melinde foi chegado . . . II. 57
. . . antes que chegado
Seya este capitão . . . . . I. 76
meio caminho a noite tinha andado . . . . . II. 60
já tinha vindo Henrique da conquista . . . . . III. 27
Chegado tinha o prazo promettido . . . . . III. 37
Ou que partes do mar corrido tinhan . . . . . I. 50
Do mar temos corrido e navigado toda a parte . . . . I. 51

The Lusiads represent the period when *ser* and *ter* could be used equally well with neuter verbs. After that time *ter* must have gotten the upper hand very rapidly. I shall say nothing of the Provençal, since it agrees, so far as I know, with the French.

Chapter III. — Auxiliaries used with Reflexive Verbs.

The question concerning the use of auxiliaries in the compound tenses of the reflexive verbs has been extensively treated, but whether the best explanation has yet been found

is very doubtful. It would be too long a task to review fully, one after the other, the authors that have written on that subject. The question has been fully examined by Gessner (*Jahrbuch für romanische und englische Sprache und Literatur*, XV, p. 201) and by A. Mercier (*De l'Histoire des participes français*). Gessner is the one author who seems to have treated the debated question more fully than any other. The principal thing to be considered in this author's work, and by far the most important (Mr. Gessner himself calling it the "Kernpunkt" of the whole question), is the assertion that the reflexive pronoun accompanying the verb is in the accusative, and yet not the direct object of the verb. Mr. Gessner tries to illustrate his theory for the German language by selecting as an instance two expressions, one reflexive and the other active, and showing that the former is more vivid than the latter, describing more intensively the actual situation or feeling of the subject. Who will deny that the reflexive pronoun adds a mild, poetical meaning to the verbal expression? But at the same time, Mr. Gessner tries to prove that logically the reflexive pronoun, though in the accusative, is not the direct object of the verb. Let us take two French sentences directly representing those given by Gessner in German: —

Il craint le danger:
Il s'effraye du danger.

In both cases, he says, *danger* is the direct object of the verb; accordingly the reflexive pronoun cannot be the direct object ("*dieser Accusativ kein Object ist*"). As far as the meaning is concerned, nothing is changed in adopting that view, and Mr. Gessner is right; but if we take into consideration the syntactical connection, he is wrong. If I say simply, *Cet homme s'effraye facilement*, undoubtedly we have to consider the reflective *se* as being the direct object of *effrayer*, just as the first personal pronoun *me* would be in *Cet homme m'effraye*.

Now if to our first sentence *cet homme s'effraye*, I add *du danger*, will these few words change the relation of the reflex-

ive pronoun to its verb so completely as to prevent it from being any longer the direct object of the verb? I do not think so. The reflexive pronoun will remain in the accusative case and be the direct object of the verb. The words *du danger* merely explain why the subject is under the control of fear, and could be replaced by *en face du danger* or *à cause du danger*.

This way of looking at the logical construction of words seems to me the natural one. Mr. Gessner is too obscure when he pretends that in expressions like the above the reflexive pronoun is in the accusative case and yet not the object of the verb, and that this accusative adds to the reflexive idea an interior intenseness, and has a tendency to deprive the verbal notion of all exterior activity, reducing it to an especially interior expression.

M. Littré, I think, was on the way towards a more plausible explanation of the difficulty, when he said in his *Histoire de la langue française*, II, 317, "*Se erant convers*, of the Fragment de Valenciennes, presupposes the low Latin *se erant conversi*." The explanation he gives of the connection between *convertor* passive and *convertor* reflexive is good, but he fails to see that the pronouns *me*, *te*, *se*, etc., had been added in the low Latin to the perfect of *convertor* through an analytic tendency, and in analogy with *convertor* reduced to *me converto* in Romance, and he concludes in saying that *se* is not an accusative case, but that it represents all the cases with the exception of the nominative, being "*a régime indéterminé sans cas déterminé*"; and that as such "*Se a pu se joindre à des verbes neutres, tels que s'en aller, s'enfuir, se taire, s'écrier*."

M. Chabanneau, in his *Histoire de la conjugaison française*, considers the auxiliaries as mere inflectional endings of the verbs in their compound tenses. Whether that inflectional ending be the auxiliary *être* or *avoir*, it does not change the nature of the relation of the verb to its object. So M. Chabanneau recognizes in the reflexive pronoun not only an accusative case, but also a direct object of the verb; for he

says, "Dans je me suis frappé, par exemple, me est le complément de *suis frappé*, comme il le serait de *ai frappé* dans la phrase supposée plus correcte je m'ai frappé." We agree thoroughly with M. Chabanneau, and indeed a rigorous parsing of the sentence cannot be made to yield to the reflexive pronoun *me* or *se* any other office (compare the "direct object" of the Latin deponent verb). It seems to me that M. Chabanneau is very near solving the question when he says (p. 5 of the work quoted above): "A l'époque du haut moyen âge tous les verbes déponents (du latin) suivaient dans la langue parlée la conjugaison active, du moins quant à leurs temps simples, car leurs temps composés étaient trop d'accord avec les tendances des langues nouvelles qui se formaient pour ne pas être maintenus, et nous les retrouvons parfaitement conservés dans la conjugaison de nos verbes réfléchis et d'un grand nombre de nos verbes intransitifs."

Although I prefer the theory of M. Chabanneau to that of Mr. Gessner, as being more complete and giving a safer clue to the question, I by no means intend to depreciate that of Mr. Gessner. The poetical meaning, the emphatic expressiveness added to the verb by the use of the reflexive pronoun *se* cannot be doubted, and this is felt by every one who is well acquainted with the French language; for it is very easy to notice that between two expressions, the one active and the other reflexive, the French generally chooses the latter, because there is in it something agreeing better with the genius of the language. But all this is far from explaining to us the difficulty presented by the reflexive verb system of the Romance languages, especially when we take into account the different tendency of some of these languages to use the auxiliary *esse* rather than the auxiliary *habere*, and that with either one of these auxiliaries they could convey their reflexive meaning, sometimes making use of the poetical reflexive pronoun and sometimes leaving it out, without causing the verb to undergo any change in its meaning, probably also without its losing any of its poetical coloring. This is especially striking in the first centuries of the development of the

Romance languages, where very often one is at a loss to find any difference in the meaning of a verb when accompanied by a reflexive pronoun and when without it. Wishing now, after these observations, to discover why the reflexive pronoun is sometimes omitted and sometimes expressed, and the reasons why some languages have adopted the auxiliary *esse* and some others the auxiliary *habere*, I must present, to begin with, a few considerations on the fate of the Latin verb itself.

On considering what has become of the déponent and neuter verbs of the Latin in coming down to the Romance languages, and how they have been used, especially in the old stage of these languages as purely transitive verbs (compare *se mourir*, *mourir quelqu'un*, *imiter quelqu'un*, *étudier quelque chose*, *périr*, *se périr*, *périr quelque chose*, *se naître*, *se venir*), it may be assumed that all the Latin verbs that have survived in the Romance languages have been handed down in an active form, having an active meaning and capable of expressing a transitive action. Among these verbs there was a certain number that contained in themselves a reflexive idea, that is, that the subject was doing the action for its own self. Such, for instance, are **morio*, *ambulo*, *venio*, *vado*, *vivo*, *descendo*, *ascendo*, etc. The idea expressed by these verbs might be rendered by *morio me*, *ambulo me*, *venio me*, *vado me*, *vivo me*, etc. We know that a strong analytical tendency presided over the formative period of the verbal system in the Romance languages, and it was, no doubt, this tendency that caused them to give to Latin verbs that were intransitive in their synthetical state, complements, just as other complements were given to other verbs more intransitive in their outward appearance. But since the verbs of the first category, on account of the very essence of their internal meaning (which meaning was arrived at by the disintegrating or analytic genius of the new languages) were left, by general consensus undoubtedly, to express an action especially for the benefit of the subject itself, without going outside of it; so that no other complement could be given them but a reflexive complement expressed by the pronouns *me*, *te*, *se*.

Hence we have the name of reflexive verbs given to *me morio, me vivo, me vado, me descendo, me venio,* etc., which verbs have been used in a reflexive form in all the Romance languages, and are the legitimate growth and legitimate representatives according to the analytical tendency of the Latin verbs *vivo, venio, morior,* etc.

Grammarians say that *j'ai vécu, je suis mort, je suis allé, je suis venu, je suis descendu,* etc., are neuter verbs. Apparently they are; bût before these forms arose we had *je me suis vécu, je me suis mort, je me suis allé, je me suis venu, je me suis descendu,* etc.; and these verbs are nothing but reflexive verbs. When the question of the conjugation of such verbs as *me vivo, me morio, me venio* arose, or, to speak more plainly, when these verbs came to be used in all their tenses, it was very easy to conjugate them in their simple tenses. But in compound tenses (and here let us remember what M. Chabanneau said in his *Histoire,* p. 5) the difficulty was greatly increased. There must have been, at the time of the formative period, two tendencies working in the Romance languages: one, the analytical, resolving the compound tenses into periphrastical by combination of the auxiliary *habere* and of the past participle of the conjugated verb. The indicative present being *je me vais, je me descends, je me pars,* the compound tenses of the preterite regularly became *je m'ai allé, je m'ai descendu, je m'ai parti.* This is the most natural explanation, and this accounts for the well-known fact that a great number of French dialects still use the auxiliary *avoir* in combination with compound tenses of reflexive verbs, and that children and uneducated people do the very same thing. It would be of great importance to know the relative use of *esse* and *habere* in the different Romance dialects. Very likely in all of them instances of the use of both auxiliaries are to be found, with this difference, that they are more or less abundant, according to each dialect. M. Chabanneau has mentioned the fact that several dialects of France make use of *avoir* as well as *être.* I may say, that in the *Parler Saucerrois,* and in the Berry generally, this use is very com-

mon. For instance, it would not be rare to hear some one say, *Je m'avais trompé, il s'avait sauvé, je m'avais plaint, il s'a bien donné de la peine*, etc. The use of *avoir* is extended also to neuter verbs, like *il a tombé*, etc.

Compare also the Franco-Venetian in Romania, XIV., 177.

Avec lui m'averò corucer	Berta e Milone .	251
Que a lui plu s'avoit aprosmer	Berta e Milone .	274
Ni an Milon no se soit consoler	Berta e Milone .	
Dapois que de França m'avi sevrer	Orlandino . . .	399
Mal verò l'ore q'i s'en aura sevrer	Orlandino . . .	234
Mere fait il porqe vos ert envier	Orlandino . . .	232

But besides that tendency of analysis on the part of modern languages, there must have been another, not less powerful, which may be termed the Latinistic, by which is meant the tendency to conjugate deponent or reflexive verbs in accordance with the system prevailing in the Latin language. *Partior* had given in the preterite under the influence of the analytical tendency, *je m'ai parti;* the same verb will give under the Latin influence, *je suis parti* (*partitus sum*). The table on pp. 46 and 47 will illustrate the effect of the two tendencies.

This table shows us the analytical or active tendency of the modern languages, which tendency, had it not been checked by another, would have caused that all the compound tenses of Romance reflexive and neuter verbs should be conjugated with *habere*, just as they are at present in Spanish and Portuguese. These two languages have carried out thoroughly the analytical tendency, though not without at first yielding to the syntactical influence of the Latin verb-system. Thus we see that the analytical and conservative tendencies have been working side by side, the one overruling the other in different languages; and as a result of that struggle we have a double system of conjugating reflexive verbs in the Romance languages, just as the struggle between the strong Latin conjugation and the weak Romance conjugation resulted in the development of two classes of verbs. Which one of these tendencies was the stronger at the beginning is difficult to say; but I am inclined to think that the

Latin tendency was the stronger, at least in French and Italian. In the Fragment de Valenciennes we find *être* alone

	Latin.	Romance Analysis.	Latin.
	morior	*morio me*	*mortuus sum*
French . . .	. . . . .	je me meurs (or je meurs)	. . . . .
Italian . . .	. . . . .	mi muoio (or muoio)	. . . . .
Spanish . . .	. . . . .	me muero (or muero)	. . . . .
Portuguese . .	. . . . .	me morro (or morro)	. . . . .
	partior	*partio me*	*partitus sum*
French . . .	. . . . .	je me pars (or je pars)	. . . . .
Italian . . .	. . . . .	mi parto (or parto)	. . . . .
Spanish . . .	. . . . .	me parto (or parto)	. . . . .
Portuguese . .	. . . . .	me parto (or parto)	. . . . .
	venio, **venior* Cf. *venitur*	*venio me*	**venitus sum* or **venutus sum*
French . . .	. . . . .	je me viens (or je viens)	. . . . .
Italian . . .	. . . . .	mi vengo (or vengo)	. . . . .
Spanish . . .	. . . . .	me vengo (or vengo)	. . . . .
Portuguese . .	. . . . .	me venho (or venho)	. . . . .
	intro, **intror*	*intro me*	**intratus sum*
French . . .	. . . . .	je m' entre (or j'entre)	. . . . .
Italian . . .	. . . . .	mi entro (or entro)	. . . . .
Spanish . . .	. . . . .	me entro (or entro)	. . . . .
Portuguese . .	. . . . .	me entro (or entro)	. . . . .

used. In the Alexis and Chanson de Roland we find *avoir* only three times, but *être* very often. It is very difficult to say how long *avoir* continued to be used in the conjugation

of reflexive verbs in French proper. The latest instances I have found occur in the Roman de la Rose and Villehardouin;

Romance Analogy. Full Reflexive Verbs.	Latin Influence. Elliptical Reflex. V'bs.	Romance Creation, or Active Tendency.	Reduced Expression.
me mortuus sum	*mortuus sum*	*me mortuum habeo*	*mortuum habeo*
je me suis mort	je suis mort	. . .	. . .
mi sono morto	sono morto	. . .	. . .
me soy muerto	soy muerto	me he muerto	he muerto
me sou morto	sou morto	me tenho morto	tenho morto
me partitus sum	*partitus sum*	*me partitum habeo*	*partitum habeo*
je me suis parti	je suis parti	. . .	. . .
mi sono partito	sono partito	. . .	. . .
me soy partido	soy partido	me he partido	he partido
me sou partido	sou partido	me tenho partido	tenho partido
me venitus sum or *me venutus sum*	*venitus sum* or *venutus sum*	*me venitum habeo*	*venitum habeo*
je me suis venu	je suis venu	. . .	. . .
mi sono venuto	sono venuto	. . .	. . .
me soy venido	soy venido	me he venido	he venido
me sou vindo	sou vindo	me tenho vindo	tenho vindo
me intratus sum	*intratus sum*	*me intratum habeo*	*intratum habeo*
je me suis entré	je suis entré	. . .	. . .
mi sono entrato	sono entrato	. . .	. . .
me soy entrado	soy entrado	me he entrado	he entrado
me sou entrado	sou entrado	me tenho entrado	tenho entrado

but I dare say that *avoir* was used with reflexive verbs in French about as long as *ser* was used in Spanish with the same reflexive verbs. We shall see further on when the

latest traces of the Spanish reflexive verb conjugated with *ser* are to be found. We see, then, that as long as the French and Spanish languages can be compared, the opposite process of development in this particular took place. Thus, while the Latin or conservative influence was predominating in the French, the modern tendency was predominating in Spanish. The explanation of this is plain enough. We know that the southwest languages of the Romance family (the Spanish and Portuguese) have a development totally independent of that of the northeast group (the French and Italian). One of these characteristics is found in the way these different languages have treated their verbal system. Whereas, on the one hand, the French, and yet more the Italian, have striven against the influence of analogy to keep alive the strong Latin conjugation, whether by retaining original Latin strong verbs, or by making weak Latin verbs strong, the Spanish and Portuguese have, on the other hand, transferred, we may say, the whole of the Latin strong conjugation to the weak conjugation, thus yielding to the unifying power of analogy. Thus one may see how independently each language or each group of languages develops. And we must not wonder that the Spanish and Portuguese use *haber* and *ter* with their reflexive verbs, and the French and Italian *esse*. Even in these two languages the development of the use of *esse* was not totally accordant. From the very beginning the French made no difference whether the reflexive pronoun that accompanied the verb was in the accusative case or dative; everywhere *être* was made use of. The Italian, on the contrary, used at first *avere* whenever the reflexive pronoun was in a dative case, and *essere* when it was in the accusative case; but later on *avere* yielded to *essere* in the dative case also. I have already mentioned above the great freedom of the Romance languages in older times to express or to leave out the reflexive pronoun without altering the meaning of the verb. How shall we account for that peculiarity, which is common to all the Romance languages? Here, again, I attribute it to two tendencies: the conservative, which was

to represent the compound tenses with *sum* (as in Latin) and the past participle, without adding to it any reflexive pronoun; and the analytical tendency, which was to apply to compound tenses the analysis made of simple tenses. The former tendency had given: —

morior (*morio me*), *mortuus sum*,
partior (*partio me*), *partitus sum*;

the latter tendency gave: —

morior, *morio me*, (*me*) *mortuus sum*,
partior, *partio me*, (*me*) *partitus sum*,

thus carrying the use of reflexive pronouns from simple tenses to compound tenses. Hence there was a conflict between these two tendencies, the one leaving out the analogical reflexive pronoun of the compound tenses, while the other had introduced it. But, of course, the meaning was perfectly preserved, and remained the same in both cases.

In this way could be explained the apparent inconsistencies of the reflexive Romance conjugation. The Latin tendency, which was weaker than the analytical, has gained the upper hand in one class of verbs, called above "elliptical reflexive verbs," and consequently the pronoun has been omitted: *Je me suis parti, je me suis allé, je me suis venu*, have settled definitely into *je suis parti, je suis allé, je suis venu*.

But the tendency that had pushed the Spanish language towards adopting the auxiliary *haber* for the conjugation of all the neuter verbs was also working in French, and our first class of verbs having adopted, through Latin influence, *être*, the second class of neuter verbs adopted the auxiliary *avoir*. In yet a third class of verbs neither tendency prevailed, and to this very day they make use of the two auxiliaries. Compare: —

Je suis monté or *j'ai monté*;
Je suis descendu or *j'ai descendu*;
Je suis resté or *j'ai resté*;
Je suis passé or *j'ai passé*, etc.

Grammarians have decided that *être* must be employed when the verb marks state or condition, and *avoir* when it

indicates an action, and generally our feeling is influenced by this distinction; but I have tried to show that such was not the case in the Old French period.

It has already been assumed, in the first part of this treatise, that every verb is active, and consequently all the verbs that have come down to the Romance languages from the Latin mother tongue must have been verbs belonging to the active voice. To explain this phenomenon we must go back to the early period of the Latin, just as to explain the Italian forms *struggere* and *traggo* we have to go back to the period when the classical forms *strucre* and *traho* were represented by the more primitive forms *strugere*, *trag(h)o*. The *g* of these latter forms is still preserved in the sigma perfects, *traxi*, *struxi* standing for *trag-si*, *strug-si*. By going back to the formative period of the Latin, we shall see that the active voice was the only voice this language then possessed.

It has been said (cf. *Die Verbal Flexion der lateinischen Sprache* of Westphal and others) that the Greek constructed its middle and passive voices (the aorist and future excepted) with the same inflexional endings, μαι, σαι, ται, and these endings were originally, as the comparison with other languages proves, endings of the middle voice, which afterwards, through a transfer of meaning, were used as passive endings. The Latin verb must have once possessed endings similar to the μαι, σαι, ται of the Greek, and with a parallel meaning; but they were afterwards lost, a periphrastic expression being introduced in its stead. That periphrastic expression was made up of an active form, *e.g. amo*, and the reflexive *se*. But the Latin did not keep this new formation in its primitive state, and a fusion of the periphrastic expression into a single word took place, and *amo se* became *amor(e)*, *amas-se*, *amar(i)s*, etc. Just as the endings μαι, σαι, ται had served as inflexional endings to the middle and passive voices, so the parallel Latin endings formed its passive and deponent forms. Thus four periods might be distinguished in the verbal growth of the Latin, viz.: *The first period*, when the Latin had forms similar to that of the Greek in μαι, σαι, ται; *the second*

period, when the active voice became middle by the independent use of *se* (*e.g. amo-se*); *the third period*, when the verb and *se* combined into a single word (*amo* + *se* > *amor*), and the reflexive meaning was changed to a passive. Such transfer of a reflexive to a passive meaning was the regular development of human thought, which with a reflexive idea necessarily and logically associates a passive idea; so that in the classical period of the Latin language the same endings had to express a reflexive and a passive verbal notion. The new period having been created by a tendency towards a passive notion or idea, it is natural that the passive verbs should have been more developed in the classical Latin than the reflexive verbs; but at the same time the tendency was not so strong as to push all the more ancient reflexive verbs into passives. Hence we have a certain number of them reserved by classical authors to a reflexive use exclusively; but even these contained in themselves the power of being used passively as well as the others, and that power had been given them by the general tendency that had pushed Latin verbs from reflexives to passives. This seems the most plausible way to explain how deponent verbs like *adhortari*, *admirari*, *consolari*, *dilargiri*, *meditari*, *partiri*, *sortiri*, reserved by classical writers to deponent use, are found in the passive voice, especially in the past participle (compare Livy: —

Partitis divenditisque reliquiis . . . . . XXI. 21
Ex malignitate praedae partitae . . . . . V. 20

Compare also Draeger, *Historiche Syntax*, I., p. 156); and how passive verbs retained the deponent meaning and were used as deponent verbs (compare Livy: —

Sed ruinae maxime modo jumenta cum oneribus devolvebantur . . . XXI. 33
Ut idem in singulos annos orbis volveretur . . . . . III. 10
Priusquam hostes moverentur . . . . . XXXVII. 18).

The fourth period, when the passive meaning was given up through popular influence, and the original reflexive meaning was restored by means of decomposition resulting in the independent expression of the verb-form and the reflexive pronoun. This last change, beginning at a time when the

Latin language had no longer power to restrain the independent growth of the popular idioms, was carried out by the Romance languages. That decomposition was so thorough that abstract notions and inanimate things that can only express a passive idea, were clad with active forms in such a way that they seem to be the agents of the verbal notion.

Compare the French expressions : *Ce livre se trouve sur la table ; ce bois se fend difficilement ; cette maison se bâtit lentement ; cette terre se dessèche ; cette expression s'emploie ; cette chose se dit ; ce pays se ruine*, etc., etc.

Why the Latin abandoned its middle endings would be difficult to say, since we have lost nearly all traces of the languages that surrounded the Latin in its formative period, but that transformation is no more surprising than a great number of other linguistic phenomena. Nor is the use of *se* for all the persons of passive verbs in Latin inexplainable. The idea contained in the word *se* (one's self) is of an indefinite character, and hence *se* can be connected with any person in any number. This same phenomenon is to be found in Scandinavian dialects, as well as among Romance-speaking people of a certain portion of Switzerland, the Rhäto-romonsch. Compare *Grammatica clementara dil lungatg Rhäto-romonsch*, scritta da J. A. Bühler, p. 64: "Il pronom '*se*' ei en tuttas formas, persunas, modas tuts temps ligiaus vid il verb . . . ridicul ei de voler declinar quei pronom '*se*' a la moda italiana e franzosa, sco p. e. *j'eu mi fidel, tu te fidas*, la flexiun de quei pronom ei en el lungatg romonsch buca veguida cultivada e nos ureglia romonscha sa buca vertir pei quei Italianismus."

Thus we see that in this particular language the reflexive verb takes the reflexive pronoun *se* in all the persons, in both numbers. The "*se*" is now yielding to *me, te, se*, and that under the influence of the Italian and of the French. Consequently the reflexive verbs of the Romance languages are nothing but the legitimate representatives of the first Latin type *amo-se*, with the difference that they have undergone from the very beginning the change which the Ro-

monsch is undergoing now. Their analytic tendency caused them to substitute for *se* alone the different pronouns *me, te, se, nos, vos.*

After these considerations let us review the history of the reflexive conjugation in the different Romance languages. This history has been extensively treated by Gessner and others in the works quoted above, for French especially; and as far as the last language is concerned, we have but very little to add.

I. *Auxiliaries with Reflexive Verbs in French, without Direct Object.*

It has been already stated in the foregoing part of this article, that French, making no difference whether the pronoun was in the accusative or in the dative case, used the auxiliary *être* in conjugating its reflexive verbs. As an exception to the above rule is found a certain number of compound tenses of reflexive verbs conjugated with the auxiliary *avoir*. A list of such instances is found in Chabanneau's and Gessner's works, and in some others. Two instances nowhere found quoted are given here, since it is desirable that such a list should be as complete as possible :

S'ai moi dedens l'archière mis (Roman de la Rose, 22. 616);
E quand chascun s'ot a sa terre assené (Villeh. Conq. de C. 100).

It is very probable that *avoir* has not been used in compound tenses of French reflexive verbs since the beginning of the fourteenth century.

II. *Auxiliaries with Reflexive Verbs in French, with Direct Object.*

M. Littré, in his *Histoire de la langue française*, p. 321, says that "*je me suis coupé le doigt*" ought to be considered as a solecism, and that the correct expression would be "*je m'ai coupé le doigt.*" But since we have considered the reflexive pronoun in such cases as *je me suis coupé* as being the direct object of the verb, we shall easily understand that here the

personal pronoun *me*, being accompanied by a more explicative and descriptive object upon which finally the action expressed by the verb falls, yields its place to it and assumes a dative case. When we say *je me suis coupé*, *me* receives entirely the action expressed by the verb; but when we specify more by adding *le doigt*, the pronoun receives the action only indirectly, and consequently assumes the place of an indirect object. It is, as we see, a mere change of case, which does not entirely break the relation of the reflexive pronoun with the verb, but still leaves the latter under the indirect influence of the former; and hence there is not a sufficient ground to allow the verb to change its auxiliary. Indeed, in such cases the Italian, as a rule, used to change its auxiliary and take *avere;* but this fact only proves that the tendency towards a single type of conjugation, when a reflexive pronoun accompanied the verb, had a more powerful sway in French than in Italian. But if M. Littré's assertions that the French had sacrificed the rule of the grammar for the sake of euphony, and had been imposed upon with a solecism, were correct, the same thing could be said of the Italian of today, since the latter follows the same rules as the French in the reflexive conjugation. This will be clearly shown later on.

Speaking of the supposed anomalous expression, "*je me suis coupé le doigt*," M. Littré says: "Je ne sais si elle est ancienne, je suis porté à croire que non, mais je n'ai là-dessus aucun renseignement." I have tried to collect a certain amount of material to prove that it was ancient, and as a result find plenty of reflexive verbs with direct object in Livre de Job, Sermons St. Bernard, Livre des Rois, Guillaume de Tyr, Joinville, Villehardouin, but none in compound tenses. But there is no reason to suppose that the Old French, taking a direct object in the single tenses of reflexive verbs, should have avoided it in compound tenses. However, we find in Rabelais and Montaigne so many instances of reflexive verbs accompanied by a direct object in compound tenses, that it is impossible not to think that the same thing had been done a long time before them.

Compare: —

Il se frottait ordinairement le ventre d'un panier (Rab. 123);
Elle s'était fait aucun mal (Rab. 396);
S'est rompu le coul (Rab. 74[2]);
S'être avec une plume tiré un ciron de la main (Rab. 117[2]);
S'étant un peu frotté le front et secoué les oreilles (Rab. 294[2]);
Nous estant been à point sabourés l'estomac, etc., etc.

III. *Auxiliaries with Reflexive Verbs in Italian.*

In the most ancient writers of the Italian language, Matteo Spinelli, Ricordamo Malespini, Dino Compagni, and Dante, I do not find a single exception to the rules of the accusative and dative cases. That is to say, reflexive verbs accompanied by a personal pronoun in the dative case take the auxiliary *avere*, and those accompanied by the personal pronoun in the accusative case take the auxiliary *essere*.

Matteo Spinelli.

Dative Case: —

Ma che imprestassero allo re chilli denari che se avevano portati per le spese (1101). — Che s' avesse fatta la tassa delle spese a se et a soi famigli (1069). — E cha isso se l' havia recuperata per viva forza da mano di due Papi (1087). — Per che isso se l' haveria tenuto come a figlio (1087). — Lo re disse cha non volea fare perdere la ventura a quella zitella que per la belleza si se l' havia procacciata (1095).

Accusative Case: —

Che se ne erano fuggiti in Schiavonia (1079). — Che Napoli si era arrenduta (1085). — Li-frati della zitella se ne sariano contentati (1093). — Dove s' era ritirato lo comte di Tricario (1107). — Recuperando quelle terre che s'erano ribellate (1107).

Ricordamo Malespini.

Accusative Case: —

Il centurione si era dilungato (893). — La quale città non s' era rifatta (907). — I quali s' erano recati in contado de Firenze (908). — E di poco s' erano levati d' uno poggio (931). — Allora s' era retta la città sotto signoria de' consoli (942). — S' erano posti ad assedio al castello di Capraja (970). — Il suo fratello bastardo Manfredi se n' era fatto vicario (976). — Manfredi s' era coronato re di Cicilia (978). — S' erano messi ad assalire tutta l' oste dei Fiorentini (989). — Molta buona gente del regno di Sicilia s' erano partiti (1024). — Il re Carlo no s' era voluto imparentare con lei (1024).

Cronaca di Dino Compagni.

Accusative Case: Cavalieri novelli s' erano fatti (473); Niuno se sarebbe campato (503); Ma poi che i Bianchi si furono partiti (517); Reggio e Modena s' erano rubellate (520).

Dante.

Dative Case: —

Quando s'ebbe scoperta la gran bocca . . . . . Inf. XII. 79
Dall' altra già m' avea lasciata Setta . . . . . XXVI. 111
Tre Frison s' averian dato mal vanto . . . . . XXXI. 64
Gualandi con Sismondi e con Lanfranchi,
S' avea messi dinanzi dalla fronte . . . . . XXXIII. 33
Rivolsersi alla luce che promessa
Tanto s' avea . . . . . Parad. VIII. 44
Dell' anime, che Dio s' ha fatte amiche . . . . . XXV. 90
Dell' eterno Valor poscia que tanti
Speculi fatti s' ha . . . . . XXIX. 144

Accusative Case: —

Considereremo come gli uomini molto onorati si siano da esse lòro proprie partiti (Della Vol. El. 750). — Alcuni si sono partiti dal suo proprio materno parlare (752).

Ed io, che del color mi fui accorto . . . . . Inf. IV. 15
E poi ch' alla man destra si fu vôlto . . . . . IX. 132
Vedi là Farinata che s' è dritto . . . . . X. 32
Credo que s' era inginocchion levata . . . . . X. 54
Restato m' era . . . . . X. 74
E quel medesmo, che si fue accorto . . . . . XIV. 49
Gittato mi sarei tra lor disotto . . . . . XVI 47
Ma perch' io mi sarei bruciato e cotto . . . . . XVI. 49
Che questa, per la quale io mi son mosso . . . . . Purg. I. 63
Ma s' io fossi fuggito ni vêr la Mira . . . . . V. 79
L' ombra, che s' era al giudice raccolta . . . . . VIII. 109
Con Beatrice m' era suso in cielo
Cotanto gloriosamente accolto . . . . . Parad. XI. 13
E ch' io non m' era lì rivolto a quelli . . . . . XIV. 135

Boccaccio.

Dative Case: —

Li quali come vestiti s' ebbe a suo dosso fatti parevano (Decam. 2. 2). — Parlando s' arebbe vitupéro recato (3. 2). — Hommi posto in cuore di fargliele alcuna (3. 3). — S' avea posto in cuore di non lasciarla mai (3. 7). — In tanto che parente nè amico lasciato s' avea che (4. 10). — Avendo si prima tirato il cappuccio (6. 10) — Per venire a costui che non pensa cui egli s' ha menata a casa (7. 2). — Avendosel tirato un poco innanzi (7. 5). — Egli s' avesse molto messo il cap-

pucio innanzi (7. 5). — Messer lo geloso s' avea messe alcune petruzze in bocca (7. 5). — Ma tuttavia che egli s' abbia di me detto (7. 8). — Avendo se adunque questa promession fatta (7. 10). — Per non poterti vedere t' avresti cavati gli occhi (8. 6). — Avendo si l' anello di lei messo in bocca (10. 9). — I panni che spogliati s' avea (10. 10). — Que gli che la mi diede se l' ha ritolta (La Fiammetta, V.).

Accusative Case: —

D' ogni cosa opportuna a dovere . . . fornito s' era (Decam. 3. 5). — E poi che egli in diverse maniere si fu molto ingegnato (3. 7). — S' era per paura gittato nel canale (4. 2). — Fuggita si sarebbe del padre e venuto se ne a Gerbino (4. 4). — Alcuna posta vicina al cuore gli s' era rotta (4. 6). — Della sua novella s' era deliberata (6. 9). — Tu ti sei ingannato di dimostrarmi (1. 2). — Che riguardasse si partito si fosse (1. 7). — Altrui s' è di beffare ingegnato. La altrove si fosse fuggito (2. 2). — Si io mi fossi di ciò accorto (2. 3). — Che maggiore non si saria potuta portare (2. 8). — Io non avrei mai creduto che . . . ti fossi guardato (2. 8). — E quando ella si sarebbe voluta dormire (3. 4).

Two exceptions to the rule of the accusative case are found in Boccaccio: —

Che alla gelosia tu t' hai lasciato accecare (7. 5); Poichè la donna s' ebbe assai fatta pregare.

Machiavelli.

Dative Case: —

Trovando si ingannati . . . di quel futuro bene que si avevano presupposto (Il Principe, III.). — I gentiluomini Romani si aveva guadagnato (VII. 37). — E tanto erano validi i fondamenti che in si poco tempo si aveva fatti (VII.). — Li gradi della milizia quali . . . s' aveva guadagnato (VIII.). — Onde avendo si creato odio (XIX.). — Tutta la gloria che si avevano nel principio acquistata (Istorie F. II. 281). — Le quale per la morte di Messer Niccolò si avevano acquistate (II.). — Parendo gli aversi tirato addosso troppo importante nimico (VI. 229). — Cosimo avendo si alla sua potenza la publica et la privata via aperta (VII. 239). — Quella città che non s' avevano saputa conservare (VII. 276). — Pensando di godersi . . . quello stato che s' avevano stabilito (VII. 293).

Accusative Case: —

E quelli che se li erano gittati in grembo (Il Principe, III. 17). — La virtù dell' animo loro si saria spenta (IV. 28). — Si non si fusse lasciato ingannare da Cesare Borgia (VIII.). — Si era del regno di Napoli insignorito (Istorie F. II. 281). — Molti ghibellini che si erano con loro accostati (II.). — E se da Francesco s' era avuto poco (VII. 263).

Just as were found in Boccaccio exceptions to the rule given about the use of the auxiliary when the pronoun was in the accusative case, so in Machiavelli was found one ex-

ception to the rule given when the pronoun was in the dative. Here, for the first time, I met with *essc* in the compound tense of a reflexive verb preceded by a pronoun in the dative case: —

Per non gli potere satisfare in quel modo que si erano presupposto (Il Principe, II.).

Ariosto.

Dative Case: —

Che piede o braccio s' abbia rotto e smosso . . . . . I. 59
E più volte s' averan rotta la fronte 2. 66
Polinesso che già s' avea proposto
Di far Ginevra al suo amator nemica 5. 36
E composto fra te t' hai queste cose 5. 39
Che per dolor s' avea dato la morte 5. 61
Che s' avea per non esser conosciuto
Cambiati i panni e nascose le chiome 5. 65
Che a difender Ginevra s' avea tolto 5. 77
Dove li dui guerrier dato e risposto molto s' aveano 5. 80

(Compare 5. 80; 7. 64; 9. 73; 10. 6; 10. 99; 12. 61; 15. 30; 15. 29; 16. 60; 16. 79; 17. 110; 18. 117; 20. 10; 21. 2; 23. 10; 23. 53; 24. 21; 25. 51; 25. 85; 26. 91; 27. 71; 27. 132; 28. 36; 28. 65; 29. 8; 29. 37; 31. 41; 31. 79; 31. 88; 32. 30; 32. 40; 32. 64; 32. 59; 32. 72; 32. 79; 33. 43; 33. 71; 34. 41; 37. 35; 37. 40; 38. 78; 39. 57; 40. 21; 40. 56; 40. 78; 41. 41; 43. 85; 44. 74; 45. 69; 41. 49.)

Accusative Case: —

Più volte s' eran già non pur veduti 1. 16
Che s' era in mar sommerso Ariodante 5. 57
Ed armato con lui s' era condutto 5. 91
D' all' onde Idaspe udita si saria 7. 36
E perchè molto dilungata s' era 8. 32
Che s' erano serbati in quegli affanni 14. 101
Ma Farraù che sin qui mai non s' era
Col re Marsilio suo troppo disgiunto 16. 71
Che 'l pagan s' era tratto in quella parte 16. 89
A caminar se gli era messo a lato 18. 30
Malgrado di Christian rimesso s' era.

(Compare 18. 76; 18. 91; 18. 103; 21. 64; 23. 17; 23. 50; 26. 108; 27. 56; 27. 75; 27. 112; 27. 115; 27. 137; 29. 58; 30. 80; 33. 65; 34. 41; 36. 54; 37. 47; 38. 72; 40. 62;

40. 71 ; 48. 8 ; 42. 39 ; 43. 125 ; 43. 187 ; 44. 89 ; 45. 8 ; 46. 26 ; 46. 50 ; 46. 63 ; 46. 77 ; 46. 108 ; 46. 120.)

I found also in Ariosto two exceptions to the rule for the accusative, the first of which is undoubtedly due to the rhyme : —

Non così strettamente edera preme
Pianta ove intorno abbarbicata *s' abbia ;*
Come si stringon li due amanti insieme;
Cogliendo dello spirto in sulle *labbia ;*
Suave fior 7. 29
E poi che 'l Sol *s' ebbe* nel mar rinchiuso 34. 68

Francesco Guicciardini.

During the time of Guicciardini, that is to say in the latter part of the fifteenth century and the beginning of the sixteenth, several important rules must have become general in Italian, at least in prose-writers ; for one does not find in Guicciardini forms in *ade*, *ate*, for *à*, and conditionals in *aria* like *avria* for *avrebbe*. And it must be also about that period that the auxiliary *essere* was used to conjugate reflexive verbs with a pronoun in the dative case, just as it was used to conjugate reflexive verbs with a pronoun in the accusative case. Of course *avere* was also used, and plenty of instances are found in Guicciardini himself ; but we may say that from that time on *avere* was decreasing all the time in its use as auxiliary of reflective verbs with dative case pronouns. From the eighteenth century on, I do not find traces of it in the authors examined.

Istoria d' Italia.

Dative Case : —

Però poi chè lungamente si ebbe rivolto per l' animo lo stato delle cose (I. 25). — Cominciassero così presto a non corrispondere a quel che di lui s' aveva promesso (I. 69). — Che una famiglia sola s' avesse arrogata la potestà (I. 136). — I quali Alessandro con doni s' aveva fatti benevoli (I. 166). — Molti che s' avevano proposta maggior larghezza (II. 200). — S' avevano astutamente insino allora lasciata libera la facoltà di fare il contrario (II. 224).

Accusative Case : —

Si la morte non si fosse interposta a' consigli suoi (I. 18). — Non si sarebbe per avventura la pace d' Italia perturbata (I. 26). — Desideroso di ricorreggere

quel che . . . s' era fatto (I. 29). — Nel qual modo si erano altre volte abboccati insieme (II. 333). — Il quale quella mattina s' era unito con Ercole, fu morto (III. 94). — E se ne sarebbero fuggiti molti più (IV. 270).

DATIVE CASE WITH *Essere:* —

Quando ben si facessero poi effetti molto maggiori di quegli che gli uomini prima si erano promessi (III. 68). — Si erano promessi molto prima la vittoria degl' inimici (IV. 226).

Thus we see that in the first four books of the Istoria d' Italia we find two instances that make an exception to the dative case rule. .

Torquato Tasso.

DATIVE CASE: —

Ne trattane colei ch' alla partita
Scelta s' avea compagna . . . . . Gerusalemma, lib. VI. 9
Le belle arme si cinge e soppravvesta
Nuova ed strania di color s' ha presa . . . . . XVIII. 11
E insanguinati l' aquila gli artigli
E 'l rostro s' abbia . . . . . XX. 113

ACCUSATIVE CASE: —

Che s' è d' Egitto il Re gia posto in via . . . . . Gerusalemma, lib. I. 67
Già l' aura messaggiera erasi desta . . . . . III.
Recato s' era in atto di battaglia
Già la guerriera . . . . . III. 26
S' erano all' alte mura avvicinati . . . . . III. 33
Del suo avaro pensier non m' era avvisto . . . . . V. 48
S' era del lor partir Goffredo accorto . . . . . V. 85
Mentre con tal valor s' erano strette
L' audaci schiere . . . . . XI. 41
A suoi liberator s' era condutto . . . . . XX. 6

(*Aminta.*)

ACCUSATIVE CASE: —

Poi chè s' è posto in uso il grano e l' uva . . . . . Atto I. Sc. I.
Ahi! che s' è certo ucciso . . . . . III. I.
Che s' era tutto abbandonato . . . . . IV. II.
io che m' era nascoso . . . . . III. I.

ACCUSATIVE CASE WITH *Avere:* —

Per uccider se stesso é s' avra ucciso . . . . . IV. I.

This is the last exception I found in Italian to the rule given for the accusative case. And in this particular in-

stance the auxiliary *avere* must have been used to suit the metre.

From the time of Beccaria on, the use of *avere* as auxiliary of reflexive verbs must have been mostly confined to popular usage, and avoided by writers as being inelegant; for not a single instance of it is to be found in Beccaria, Goldoni, Silvio Pelico, Ugo Foscolo, Manzoni, Cantù, etc.

Beccaria.

DATIVE CASE: —

Si è riserbato a se solo il diritto di essere legislatore e giudicè nel medesimo tempore (Dei delitti e delle pene).

ACCUSATIVE CASE: —

Per sostenere questa vana metafora molte vittime si sono sacrificate (VIII.). — Alcune società si sieno astenute dal dare la morte (XV.). — Gli uomini si siano voluti assoggettare ai minori (XIX.).

Ugo Foscolo.

DATIVE CASE: —

Mi sono assai volte dimenticato il mio Linneo sopri i sedili del giardino (Jacopo Ortis, 36). — Una lunga treccia di capelli che Teresa, alcuni giorni prima delle sue nozze s' era tagliati senza che . . . (110). — S' era piantato un pugnale sotto la mammella sinistra (117). — Ma se l' era cavato dalla ferita, e gli era caduto a terra (117). — Poi non potendo nè volendo ritrarla egli solo delle rapine e degli incendj, si contentò si farsi consigliero de' capi che la moltitudine s' era eletti, e s' armò con essi (Commentario Pol. III. XV.).

Manzoni.

In the remaining quotations I shall only mention reflexive verbs accompanied with a pronoun in the dative case, and show that they take the auxiliary *essere* as well as when accompanied with a pronoun in the accusative: —

DATIVE CASE: —

Così dicendo, s' era levata la chiave di tasca e andava ad aprire (i Promessi Sposi, II. 22). — Ah! gli disse poi vi siete però fatto tagliare il ciuffo (III. 31). — Come un materialone dopo essersi cacciata in bocca stoppa (III. 33). — Le donne nella sua assenza dopo essersi tristamente levate il vestito delle feste e messo quello del giorno di lavoro (III. 34). — Non lasciava mai sfuggire un' occasione d' esercitarne due altre che s' era imposti da se (IV. 49). — Ma non c'

era quell' allegria che la vista del desinare suol pur dare a chi se l' è meritato con la fatica (VI. 70). — Cosi impegnandosi a ogni delitto che gli venisse comandato, colui si era assicurata l' impunità del primo (VII. 81). — Dopo aver sofferto ed essersi morse le labbra un pezzo (X. 136). — Un piccol sentiero indicava che altri passeggieri s' eran fatta una strada ne' campi (XI. 48). — Quando Renzo si fu levato il farsetto (XV. 290). — Facendo tutta via litigar le dita co' bottoni de' panni che non s' era ancor potuto levare (XV. 190). — Si trovava ancora indosso quegli stessi vestiti que s' era messi per andare a nozze in quattro salti (XVII. 215). — È proprio del vestro paese quello che se l' è battuta per non essere impiccato (XVIII. 229). — S' è fatto scrupulo di darle una briga di più (XVIII. 236). — ma appena partito costui sentendo scemare quella fermezza che s' era comandata per promettere (XX. 253). — L' innominato pensò subito a rispondere a questa che s' era fatta lui stesso (XXI. 269). — Dopo essersi cacciate le mani ne' capelli (XXIV. 306). — E di paragonarlo con l' idea che da longo tempo s' eran fatta del personaggio (XXIV. 309). — Si mille volte se n' eran fatti beffe, non era già (XXIV. 314). — L' avrebbe preteso e se ne sarebbe fatto render conto (XXV. 317). — Della filosofia naturale s' era fatto più un passa tempo che . . . (XXVII. 348). — Questo aveva sempre continuato a far ciò che . . . s' era proposto (XXIX. 376). — Nessuno scrittore d' epoca posteriore s' è proposto d' esaminare (XXXI. 389). — Andasser facendo di quegli atti che s' erano figurati che dovessero fare gli untari (XXII. 413). — S' eran promesse di non uscir dal lazzaretto (XXXVI. 470).

Cesare Cantù.

Ora mangiavano di quel che s' erano preparato (Margherita Pusterla, I. 6). — Sotto i piedi dei destrieri s' era per alcuni minuti vista la morte ad un pelo (II. 22). — Margherita erasi recato in mano un libriccino (III. 38). — Franciscolo . . . si era assunta la esibita ambasceria a Mastino (IV. 58). — non mostrava d' averli in quel conto ch' e' s' erano ripromesso (V. 80). — Onde erasi formato un modo proprio di vederle (V. 83). — E s' era fatto premura di recarli quella sera a Margherita (V. 82). — Il cui padre lavorando s' era acquistato pel paese un triste nome (VIII. 144). — i soldati eransi tolta in mezzo la Margherita (IX. 160). — Ma s' erano lasciato fuggire Franciscolo (XIII. 221). — Per riparare la quale erasi cavato la giubba (XII. 223). — Quivi entrando Luchino, sebbene già si fosse messa intorno al cuore la calcolata freddezza (XX. 365). — E due gran mustacchi che s' era acconci (conclusione).

Nuova Antologia (*Volume* 48).

Arrigo il Savio.

E quando mi ha scritto che aveva bisogno di me, si figuri, mi sono augurato un bel paio d' ali (478). — Guasti pur troppo la bella immagine che io m' era formata dell' amor tuo (494). — Il conte Guido non si era proposto di andare (Vol. 49. 98). — Te lo dirò un' altra volta quando mi sarò formato una vera certezza intorno a certe cose (233).

Vita e avventure di Riccardo Joanna (*Volume* 52).

Riccardo si era annodato dietro la nuca, con molta disinvoltura il tovagliolo bianco (690).

Dalla culla alla tomba (*Volume* 54).

Gli uomini s' eran presi un pezzo di crescia sotto al braccio (460). — S' eran messo l' abito più bello benchè non dovesse accompagnare il battesimo (467).

Montegù (*Volume* 46).

Egli in vece si era dato ogni premura per soddisfare a tutte le richieste di danaro che gli venivan fatte (89). — Il rincrescimento di dover rinunciare a un tratto alla fama di giovinetto elegante e alla moda ch' egli s' era conquistata (276). — Chi avrebbe avuto fiducia in un uomo che s' era mangiato il suo (280). — E che per conto mio me ne sarei lavate le mani (460). — Piena di freddo, sebbene si fosse tirate le coltri fin quasi sopra il capo (463). — Anche quella volta s' era preso i guanti e il cappello (469). — Il tenente Aschieri per aver detto ciò, s' era presa una sciabolata (479). — Bianca si era creata un mondo a parte (651). — Parendo le oramai di esserselo guadagnato il suo Leonardo (Vol. 47, 296). — La tutta Milano si era dato convegno alla corte d' assise (87).

Scuola normale feminile (*Volume* 49).

L' alunna sedette soddisfatta perchè almeno il suo zero se l' era quadagnato.

IV. *Auxiliaries with Reflexive Verbs in Spanish.*

In the earliest documents of the Spanish language reflexive verbs are found conjugated with the auxiliaries *ser* and *haber*.

El Libro de los Reyes d' Orient.

Ser . . Estos reyes complieron sus mandados
É son se tornados 46

Vida de Santa Maria Egipciaca.

Haber . Quando desto te avras partido
Nos te daremos buen marido.

Romancero del Cid.

Ser . . E de él me soy escapado 66
Haber . Y de secreto se ha ido 7

Libre d' Appolonio.

Ser . . Ancoraron las naves in ribera del puerto
Encendieron su fuego que se les era muerto 458
Ser . . Los que solia tener por amigos leyales
Tornados se le son enemigos mortales 59

Poema de Alexandro Magno.

Ser . . Sennor dixo l griego tengo me por tu pagado
Quando vassallo tuyo me soe tornado 873
Ser . . Cuemo sabial falso que se fues arrancado 152
Ser . . Que se se fusse ende estovies bien recaudada
Era se ya tornado 2294

La Estoria de Senor Sant Millan.

Ser . . Que se era probado por sancto muy complido 322

Milagros de nuestra Senora.

Ser . . Mucho mas li valiera si se fuesse quedado 731

Cronica del Rey don Alfonso.

In this cronica reflexive verbs are conjugated with *haber*, except in the two following cases : —

Ser . . É que dejase los arrayaces porque él oviese dellos emienda
E cobrase la tierra con que se le eran alzados 16
Ser . . É él era se ido dende a le facer guerra de los castillos 76

Hurtado de Mendoza.

All the reflexive verbs take the auxiliary *haber* in this author.

Haber . Que de mi y de ellos se habia ido 85

Don Quixote.

I have found only one instance of a reflexive verb conjugated with *ser*.

Compare : —

Ya *se es ido* el caballero (XXI. 117).
La demas gente de casa toda *se habia ido* a comer.

Don Quixote is the last work in which any trace of a reflexive verb conjugated with the auxiliary *ser* is to be found.

V. *Auxiliaries with Reflexive Verbs in Portuguese.*

In reading such old Portuguese texts as were obtainable, I found only doubtful cases of reflexive verbs having *ser* in their compound tenses. *Haver* is the auxiliary met with in Hardung's Romanceiro and other Portuguese texts.

Cf. *A el-rei se ha queixado* (Romanceiro, 123).

VI. *Auxiliaries with Reflexive Verbs in Provençal.*

The verbal system of the Provençal follows very closely that of the French. In Le Moine de Montaudon, Pierre Vidal, Bertrand de Born, Roman de Flamenca, I found the auxiliary *esser* always used to conjugate the compound tenses of reflexive verbs.

Compare Le Moine de Montaudon.

Qu'ieu m'en sui tant defendutz e loignatz.
For de mon cor que s'es en vos mudatz.
Que de drut s'es tornatz maritz.

Pierre Vidal.

De chantar m'era laissatz.

Bertrand de Born.

Quand lo reis Richartz s'en fou passatz outra mar.
Dizon que trop me sui cochatz.

Roman de Flamenca.

Et al rei si son presentat
E quan si fou agenolhatz.

Roman de Jaufre.

El reis es se meravillatz.
Cant la vi pueis es se seinatz.
E Jaufres s'es apareillatz.
S'en es vengutz a Melian.

Gerard de Rossillon.

S'en es issiht lo como de grand iror.

Chronique des Albigeois.

Car lo duc de Bergonha s'en es ladoncs crozat.
Que el cap des castel se son tuit amagatz.
E s'es vengutz a Roma.
Lo reis P. d'Arago felos s'en es tornatz.

Roman de Fierabras.

Devas Contastinoble s'es lo rey regardatz.
Ab aquestas paraulas lo rey s'en es intratz.

Mireiò.

En-lio jamai s'es plus fa veire . . . . . I. 42
S'ei roustido lou comi e la cara au souleù . . . . . II. 58
. . . Un trau
S'erò fa de l'emboucaduro . . . . . II. 64

The lack both of proper texts and time makes it necessary to end here the investigation of the use of the Auxiliary Verbs in the Romance languages. Should this article be found of any use or interest to the student of Romance comparative grammar, it is the intention of the writer to complete it by further examination in the Wallachian, Catalan, Rhätoromonsch, and other minor Romance dialects.

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Vol. I. *OCTOBER, 1888.* No. 2.

I. — *On the Conversion of Some of the Homologues of Benzol-Phenol into Primary and Secondary Amines.*

By RACHEL LLOYD.

Various experiments, attended with but little or no success, have been made by distinguished chemists at different periods of time to convert benzol-phenol into aniline.

Some years since, Professor V. Merz and W. Weith [1] obtained aniline, together with diphenylamine, by heating benzol-phenol and zinc-ammonium-chloride at a temperature of 280–300°. Later experiments, made in the laboratory of Professor Merz [2] have shown that the above-mentioned changes take place more readily when ammonium-chloride is added to the zinc-ammonium-chloride and the temperature raised to 330°. Under these conditions, the three cresols have been converted into the corresponding mono- and ditolylamines, as well as the xylenes into primary and secondary amines. It has been further proved that zinc-ammonium-bromide and ammonium-bromide produce similar results to those given by zinc-ammonium-chloride and ammonium-chloride.

[1] Berichte der Deutschen chem. Gesellschaft XIII., 1298.
[2] P. Müller: Inaugural-Dissertation. Aarau, 1886.

In order to ascertain whether the above reactions are common to the benzol-series, or not, I have undertaken the conversion of some of the higher homologues of benzol-phenol into primary and secondary amines, with the following results.

ISOBUTYLPHENOL.

Isobutylphenol, prepared by the method given by Liebmann,[1] boiling at 230° was heated in closed tubes with zinc-ammonium-bromide and ammonium-bromide in the proportions by weight of 1 : 3 : 1 for forty hours at a temperature of 320°–330°.

The tube-contents showed indistinct layers; the upper, an amorphous mass of a dark-green color; the under layer, a semi-solid mass of a light-green color, contained an abundance of darker particles. Accompanying these was a quantity of a dark-green oily liquid. During the reaction water was formed in abundance in the tubes.

The opening of the tubes showed considerable pressure. The escaping gas possessed an aromatic odor and burned with a feeble flame.

The tubes were further heated during six hours at the same temperature; the contents showed no special change from the appearances above described, but the oily portions were *darker in color and the layers* not so distinctly marked. The treatment of the tube-contents was as follows, and this method, essentially the same as that used by Merz and Müller[2] for the separation and quantitative estimation of mono-phenyl and diphenylamine and unchanged phenol from benzol-phenol, was followed in subsequent experiments with other phenols. The reactions-mass was warmed with dilute hydrochloric acid until complete solution took place, with the exception of floating charred particles. Floating on the surface of the green-colored solution was a dark-brown oil. To insure complete separation of the substances, the entire

[1] Berichte der Deutschen chem. Gesellschaft XIV., 1842.

[2] *Ibid.* XIX., 2902.

solution was warmed with ether under reversed condenser. The oil dissolved readily in the ether. The primary base was sought for in the acid solution, and the secondary base and unchanged phenol in the ether extract.

The addition of an excess of ammonia to the acid solution caused the separation of a light-brown oil, which after extraction with ether and drying over caustic potash was fractionally distilled and weighed.

Phenisobutylamine: —

$$N\begin{cases} C_6H_4 . C_4H_9 \\ H \\ H \end{cases} = C_{10}H_{13} . NH_2.$$

The larger part of the primary base — a light-brown oil, had a constant boiling point of 230°–231°. The amidoisobutylamine obtained by Studer[1] from aniline, hydrochloric acid and isobutyl-alcohol, boiled at the same temperature. The acetyl compound of phenisobutylamine crystallized from warm alcohol in satiny leaflets, which melted at 170°, corresponding in all respects with the amine of Studer. According to the investigations of Pahl,[2] it seems evident that Studer's base is a *p* amidoisobutylamine.

The ether extract, separated from the acid solution by means of a separation funnel, was filtered to remove charred particles (which particles were dried and weighed), then thoroughly shaken with sodium hydrate to free the sought-for secondary amine from any unchanged phenol which might be present.

Diphenisobutylamine: —

$$N\begin{cases} C_6H_4 . C_4H_9 \\ C_6H_4 . C_4H_9 \\ H \end{cases} = C_{20}H_{26}NH.$$

The so-isolated secondary amine — a thick oily liquid of a deep-brown color — was twice distilled with superheated

[1] Studer, Annalen 211, 236.

[2] Berichte der Deutschen chem. Gesellschaft XVII., 1233.

steam. By this means a light golden oil was obtained, which became colorless after distillation in an atmosphere of hydrogen. A small portion distilled over at 290°–305°, a greater amount between 305°–315°; at 315° partial decomposition took place, yellowish white fumes were given off. (Under similar conditions diphenylamine boiled at 297°.)

An analysis of the portion distilling between 305°–315° gave the following result: —

I. 0.2176 gr. substance gave 0.6793 gr. carbon-dioxide and 0.183 gr. water, corresponding to 0.18525 gr. C. and 0.02033 gr. H.

II. 0.1642 gr. substance gave 8 cc. of moist nitrogen (thermometer 20° C., barometer 760 mm.) equal to 0.0090632 gr. N.

III. 0.2737 gr. substance gave 13 cc. of moist nitrogen (thermometer 21° C., barometer 726 mm.) equal to 0.0141219 gr. N.

Calculated for $C_{20}H_{27}N$.			Found. I.	II.
C_{20}	— 240 —	85.41 per cent.	85.13 per cent.	——
H_{27}	— 27 —	9.61 "	9.34 "	——
N	— 14 —	4.98 "	5.51 "	5.15 per cent.
	281 —	100.00		

I was unable to obtain the base other than as a thick oil even at temperature of −15° C. A drop of nitric acid added to the light yellow-brown solution of diphenisobutylamine in concentrated sulphuric acid, produced a violet tint which changed rapidly to blue and then to blue-black.

Finally, the unchanged phenol separated from the first ether extract was again set free by hydrochloric acid, isolated with ether, and distilled at 229°–233°. The investigations proved that in its qualitative aspects, at least, isobutylphenol is analogous to benzol-phenol, the cresols and the xylenes. The results of repeated experiments have shown that a better yield of primary and secondary amines is obtained by the action of zinc-ammonium-bromide than with zinc-ammonium-

chloride. With each were used twenty grams of phenol, sixty grams of the bromide or chloride of zinc and ammonium, and twenty grams of ammonium bromide or chloride, and the temperature was maintained at 320°–330° for forty hours.

Isobutylphenol.	Zinc-ammonium-bromide.			Zinc-ammonium-chloride.		
	I.	II.	III.	I.	II.	III.
Phenisobutylamine .	30	34	35	20	30	28 per cent.
Diphenisobutylamine	25	20	22.5	19	20	18 "
Unchanged phenol .	38	40	36.5	45	44.5	44 "
Carbonized substance	2	1	1.6	2	2.1	3.9 "

Derivatives of Diphenisobutylamine.

The Platinum Double Salt — $(C_{20}H_{26}NH \cdot HCl)_2Pt \cdot Cl_4$ — was most readily obtained by adding to an alcoholic solution of the hydrochloric acid salt an alcoholic solution of platinum-chloride. An oily salt separated at first, which after standing changed to a granular golden-brown mass.

The mass was with difficulty soluble in water, but dissolved readily in hot alcohol, from which it crystallized in golden needles. The twice-crystallized salt was dried over sulphuric acid in vacuum and at 110°, then analyzed with the following result: —

I. 0.3300 gr. of the salt gave 0.0670 gr. platinum;

II. 0.3539 gr. " " " " 0.0713 gr. platinum.

Calculated for $(C_{20}H_{26}NH \cdot HCl)_2PtCl_4$.	Found. I.	II.
20.01 per cent Pt.	20.30	20.14 per cent Pt.

Acetyldiphenisobutylamine: —

$$N\begin{cases} C_6H_4 \cdot C_4H_9 \\ C_6H_4 \cdot C_4H_9 \\ C_2H_3O \end{cases} = C_{22}H_{29}NO.$$

To form this compound diphenisobutylamine was heated with an excess of acetic anhydride for two hours at a temperature of 130°. The fluid darkened in color, and upon neutralization of the free acid with sodium carbonate, a thick crystalline mass of a gray-white color separated. This mass was thoroughly washed, dried, and crystallized out of benzol by addition of a small quantity of absolute alcohol, in glistening white leaflets, with 75° as the constant melting point. The crystals dissolved with difficulty in hot water, readily in alcohol and benzol. Efforts to obtain the base from this compound by heating with sodium carbonate and caustic soda were unsuccessful, the acetyl compound remaining undecomposed. The analysis gave the following result: —

0.2895 gr. substance gave 0.2383 water, corresponding to 0.02647 H and 0.8640 gr. carbon-dioxide to 0.23565 gr. C.

Calculated for $C_{22}H_{29}NO$.			Found.
C_{22}	— 264 —	81.73 per cent	. . . . 81.39 per cent.
H_{29}	— 29 —	8.98 "	. . . . 9.14 "
N	— 14 —	4.34 "	. . . . —— "
O	— 16 —	4.95 "	. . . . —— "
	323 —	100.00 per cent.	

ISOAMYLPHENOL.

The Isoamylphenol which formed the starting-point of the following experiments was made after the method given by Liebmann and distilled at 249°. The experiments were conducted similarly to those with isobutylphenol. With every twenty grams of phenol sixty grams of zinc-ammonium-bromide and twenty grams of ammonium-bromide were used. The substances were heated in closed tubes for forty hours at a temperature of 330°–340°. On opening the tubes a very disagreeable-smelling gas escaped, which burned with a feeble flame for a few seconds. The tube-contents were in general

appearance similar to those already described. Water was formed in abundance and the reaction-mass was dark-green in color. The bases were separated by the method used with isobutyl-phenol.

Phenisamylamine: —

$$N\begin{cases} C_6H_4 . C_5H_{11} \\ H \\ H \end{cases} = C_{11}H_{15} . NH_2,$$

a dark-brown oil of weak basic character boiled at 259°–262°. The distillation was continued until the temperature had reached 266°, when only a small amount of carbonized substance remained. It seems probable that the oil distilling between 259°–262° is identical with the amido-amyl-benzol prepared by Calm,[1] by the action of chlor-zinc-aniline upon fermentation amylic alcohol, of which the boiling point is given at 256°–258°. It gave upon analysis the following results: —

0.1547 gr. substance gave 0.4566 gr. carbon dioxide and 0.1415 gr. water, equal to 0.12453 gr. C. and 0.01572 gr. H.

Calculated for $C_{11}H_{17}N$.			Found.
C_{11} — 132 —	80.98 per cent	. . . .	80.50 per cent.
H_{17} — 17 —	10.43 "	. . . .	10.16 "
N — 14 —	8.59 "	. . . .	—— "
163 —	100.00 per cent.		

Diphenisamylamine: —

$$N\begin{cases} C_6H_4 . C_5H_{11} \\ C_6H_4 . C_5H_{11} \\ H \end{cases} = C_{22}H_{30}NH$$

was obtained as a thick dark-brown oil, which boiled at 301°–325°. In order to purify it, it was twice distilled with superheated steam, then in an atmosphere of hydrogen, when an almost colorless oil distilled over between 319°–321°.

[1] Berichte der Deutschen chem. Gesellschaft XV., 1643.

The analysis confirmed the presence of a secondary amine : —

I. 0.2529 gr. substance gave 0.7925 gr. carbon dioxide and 0.2350 gr. water, equal to 0.21613 gr. C. and 0.02611 gr. H.

II. 0.2291 gr. substance gave 10 cc. of moist nitrogen (thermometer 22° C. barometer 729 mm.) equal to 0.010854 gr. N.

Calculated for $C_{22}H_{31}N$.			Found.
C_{22}	— 264 —	85.44 per cent	. . . . 85.45 per cent.
H_{31}	— 31 —	10.03 "	. . . . 10.32 "
N	— 14 —	4.53 "	. . . . 4.73 "
	309 —	100.00 per cent.	

Upon standing, the amine became darker in color, and in concentrated sulphuric acid dissolved with an exquisite golden color which grew darker in the air ; the addition of a nitrite or of nitric acid to this solution changed the color, first to light violet, then to a deep blue. In connection with these bases, a considerable quantity of unchanged phenol was found, which was isolated and distilled. Boiling point, 247°–250°.

The results of corresponding experiments with the bromides and chlorides of zinc and ammonium are here tabulated. Temperature, 330°–340° ; time, forty hours.

Isoamylphenol.	Zinc-ammonium-bromide.			Zinc-ammonium-chloride.		
	I.	II.	III.	I.	II.	III.
Phenisamylamine . .	35	38	31	25	35	33.2 per cent.
Diphenisamylamine .	21	20	25	17.4	19.1	18 "
Unchanged phenol .	36	37	35.7	40	32	39.3 "
Carbonized substance	1	0.5	0.8	3	2.8	4 "

Derivatives of Phenisamylamine.

The Platinum Double Salt — $(C_{11}H_{17}N \cdot HCl)_2 PtCl_4$ — separated as a canary colored amorphous mass, when to a hydrochloric acid solution of the base, platinum chloride was added in slight excess. The amorphous floating mass was dissolved with difficulty in hot water, more readily in hot alcohol, and was crystallized from a hot mixture of the two in beautiful golden needles.

For the analysis, it was dried at 100°–110°, when it gave the following result : —

0.3464 gr. of the salt gave 0.0912 gr. platinum.

Calculated for $(C_{11}H_{17}N \cdot HCl)_2 PtCl_4$.	Found.
26.43 per cent Pt.	26.33 per cent Pt.

Benzoylphenisamylamine : —

$$N\begin{cases} C_6H_4 \cdot C_5H_{11} \\ C_7H_5 \cdot O \\ H \end{cases} = C_{18}H_{21}NO.$$

Phenisamylamine was treated with an excess of chlorbenzoyl, and the reaction which commenced at once was fully completed in an hour. During the operation a light-brown crystalline mass separated, which was thoroughly washed, made neutral with sodium-carbonate, and crystallized from hot absolute alcohol. After a second crystallization, exquisite crystals of a leaf-like form and a mother-of-pearl lustre shot out from the solution in great abundance. These crystals, which dissolved readily in hot alcohol and in cold chloroform and benzol, had a constant melting-point of 148.5°. Calm [1] gives the melting-point of the benzoyl-compound of his amido-amyl-benzol at 146°–149°.

[1] Berichte der Deutschen chem. Gesellschaft XV., 1645.

The analysis resulted as follows : —

0.2060 gr. substance gave 0.6101 gr. carbon dioxide and 0.1452 gr. water, equal to 0.16638 gr. C. and 0.01613 gr. H.

Calculated for $C_{18}H_{21}NO$.				Found.	
C_{18}	— 216 —	80.89	per cent	80.76	per cent.
H_{21}	— 21 —	7.87	"	7.83	"
N	— 14 —	5.25	"	——	"
O	— 16 —	5.99	"	——	"
	267 —	100.00	per cent.		

Derivatives of Diphenisamylamine.

The Platinum Double Salt — $(C_{22}H_{30}NH \,.\, HCl)_2 Pt\,Cl_4$.

The salt was best prepared by conducting dry hydrochloric acid gas into an ether solution of the base. The ether was evaporated and an oily compound obtained which dissolved readily in absolute alcohol.

The addition of an alcoholic solution of platinum-chloride to this solution, gave after some days' standing a compact, dark-golden, slightly crystalline body, which was difficultly soluble in hot alcohol. After thorough washing with water it was dried over sulphuric acid, and finally at 100°–110°.

The analyses were as follows : —

I. 0.2416 gr. substance gave 0.04450 gr. platinum.
II. 0.3396 " " " 0.06384 " "

Calculated for $(C_{22}H_{30}NH \,.\, HCl)_2 Pt\,Cl_4$.	Found. I.	Found. II.
18.92 per cent Pt.	18.41	18.76 per cent Pt.

Acetyldiphenisamylamine : —

$$N\begin{cases} C_6H_4 \,.\, C_5H_{11} \\ C_6H_4 \,.\, C_5H_{11} \\ C_2H_3O \end{cases} = C_{24}H_{33}NO.$$

In the preparation of this substance one molecule of the base was heated with two molecules of acetic anhydride for four hours at a temperature of 130°.

The chocolate-brown resulting mass became grayish-white after a thorough washing with water and neutralization of the free acetic anhydride. It was crystallized from hot benzol in shining white leaflets which melted at 81°, dissolved readily in warm benzol and chloroform, also in hot absolute alcohol.

The analysis gave the following result : —

0.1348 gr. substance gave 0.4056 gr. carbon-dioxide and 0.1172 gr. water, corresponding to 0.1104 gr. C. and 0.01302 gr. H.

Calculated for $C_{24}H_{33}NO$.				Found.
C_{24}	— 288 —	82.05	per cent	81.89 per cent.
H_{33}	— 33 —	9.40	"	9.65 "
N	— 14 —	3.98	"	—— "
O	— 16 —	4.57	"	—— "
	351 —	100.00	per cent.	

THYMOL.

The object of the following research was the study of the action of zinc-ammonium-bromide upon some of the phenols of a more complicated chemical structure. To this end thymol was selected as the starting-point.

The thymol used distilled at 230°.

The same proportions by weight of phenol, zinc-ammonium-bromide and ammonium-bromide 1 : 3 : 1 were used as in former experiments, the mixture was heated for forty hours, and the temperature raised to 350°–360°. The tube-contents presented distinctly marked layers. The upper layer, an amorphous mass of a dark-brown color, was intermingled with many lighter particles of an indistinct crystalline form.

The under layer, a lighter colored amorphous mass, was impregnated with a dark, oily liquid. Water was formed in abundance. Pressure in tubes, very slight. The contents of the tubes were warmed with dilute hydrochloric acid, then with ether under return-condenser and the bases separated according to previously described methods.

Thymylamine : —

$$N\begin{cases} C_{10}H_{13} \\ H \\ H \end{cases} = C_{10}H_{13}NH_2$$

separated as a very light-colored oil, which, after two distillations, boiled constantly at 230°.

With sulphuric acid and potassium bichromate it gave the characteristic reaction ; in the degree of its solubility in the ordinary solvents, and in its compounds it showed its identity with the cymylamine obtained by Widman [1] from cuminol.

Dithymlamine : —

$$N\begin{cases} C_{10}H_{13} \\ C_{10}H_{13} \\ H \end{cases} = C_{20}H_{26}NH.$$

The impure secondary amine, a dark smeary mass of indistinct crystalline structure, was purified by repeated distillation with superheated steam and fractionation in an atmosphere of hydrogen. The greater portion of the oil distilled between 340°–345° ; while above 346° partial decomposition took place with evolution of yellow fumes.

The so-obtained, almost colorless base, which was not solidified at −18° C., had a pleasant aromatic odor, gave with sulphuric acid a golden-brown color with a tinge of red : slight fluorescence was noticeable. Nitric acid added to this solution changed the color at once to dark-blue, which remained unchanged. With a nitrite a greenish-blue tint was produced.

[1] Berichte der Deutschen chem. Gesellschaft XV., 166.

The presence of a secondary amine was confirmed by the analysis : —

I. 0.1355 gr. substance gave 0.4264 gr. carbon dioxide and 0.1138 gr. water, corresponding to 0.1163 gr. C. and 0.01264 gr. H.

II. 0.1255 gr. substance gave 6 cc. moist nitrogen (thermometer 22° C., barometer 727 mm.) equal to 0.006494 gr. N.

Calculated for $C_{20}H_{27}N$.			Found.
C_{20}	— 240 —	85.41 per cent	. . . . 85.82 per cent.
H_{27}	— 27 —	9.61 "	. . . . 9.33 "
N	— 14 —	4.98 "	. . . . 5.17 "
	281 —	100.00 per cent.	

Accompanying these bases was unchanged thymol, which was isolated and weighed. Corresponding experiments were made with thymol and the chloride of zinc and ammonium. The results of repeated experiment are here given. The proportion of the substances used, as well as the time and temperature, were the same as when the bromides were used.

Thymol.	Zinc-ammonium-bromide.			Zinc-ammonium-chloride.		
	I.	II.	III.	I.	II.	III.
Thymylamine . . .	25	21.5	29	23	24	22.6 per cent.
Dithymylamine . .	24	30	28.5	20	25	20.5 "
Unchanged thymol .	45	40	39	48	26	44.3 "
Carbonized substance	1	0.5	0.9	2	1.9	2.3 "

Derivatives of Thymylamine.

The Platinum Double Salt — $(C_{10}H_{15}N . HCl)_2 Pt Cl_4$ — was prepared by dissolving the base in absolute alcohol, adding a small amount of hydrochloric acid, then an alcoholic solution

of platinum chloride in excess. The double salt separated at once in the form of golden needles. These were recrystallized from absolute alcohol. The crystals warmed with water, were decomposed with separation of the base.

An analysis of the salt dried at 100°–110° gave the following result: —

I. 0.1736 gr. substance gave 0.0476 gr. platinum.

II. 0.6944 gr. " " 0.19040 gr. "

Calculated for $(C_{10}H_{15}N \cdot HCl)_2PtCl_4$.	Found. I.	II.
27.48 per cent Pt.	27.41	27.42 per cent Pt.

Acetylthymylamine: —

$$N\begin{cases} C_{10}H_{13}O \\ C_2H_3O \\ H \end{cases} = C_{12}H_{17}NO.$$

The compound was formed by heating the base with an excess of acetic anhydride for half an hour at 100°. The solution, which at first was almost colorless, changed to a light-brown; upon cooling a grayish-white crystalline mass separated, which was washed and neutralized with sodium carbonate and recrystallized from absolute alcohol, in satiny white needles which melted at 112.5°, closely agreeing with the melting-point obtained by Widman.[1]

Derivatives of Dithymylamine.

The *Platinum Double Salt* — $(C_{20}H_{26}NH \cdot HCl)_2PtCl_4$ — was formed when to an ether solution of the base, acidified with hydrochloric acid, platinum chloride was added in excess. After standing for some days, a thick yellowish-brown oil separated, which was thoroughly washed in cold alcohol (in which it was not soluble) dried over paraffine and sulphuric acid, and finally at 100°.

[1] Berichte der Deutschen chem. Gesellschaft XV., 166.

The analysis gave the following result: —

0.1630 gr. substance gave 0.03241 gr. platinum.

Calculated for $(C_{20}H_{26}NH.HCl)_2PtCl_4$.		Found.
20.01	per cent Pt.	19.88 per cent Pt.

Acetyldithymlamine: —

$$N\begin{cases} C_{10}H_{13} \\ C_{10}H_{13} \\ C_2H_3O \end{cases} = C_{22}H_{29}NO.$$

This body was formed by heating together calculated amounts of the base and acetic anhydride at a temperature of 130°–135°. At the end of an hour the reaction was complete. The product, a yellowish-white mass, was crystallized from benzol in white leaflets which melted at 78°, dissolved readily in hot benzol and ligroin, sparingly in alcohol.

An analysis gave the following result: —

0.1929 gr. substance gave 0.5760 gr. carbon dioxide and 0.1589 gr. water, corresponding to 0.15708 gr. C. and 0.1765 gr. H.

Calculated for $C_{22}H_{29}NO$.				Found.	
C_{22}	— 264 —	81.73	per cent	81.43	per cent.
H_{29}	— 29 —	8.98	"	9.15	"
N	— 14 —	4.34	"	——	"
O	— 16 —	4.95	"	——	"
	323 —	100.00	per cent.		

CARVACROL.

From the results obtained with thymol it was natural to suppose that its isomer, carvacrol, would yield similar products.

The carvacrol used was obtained from Schuchardt and boiled constantly at 236°. The same proportions of zinc-ammonium-bromide and ammonium-bromide were used as in the foregoing investigations and the mixture was heated for the same number of hours at 350°–360°.

The reaction-mass consisted of a light golden-brown under-layer, and a darker overlying layer of a granular consistence, intermixed with a considerable quantity of a light-yellow oil. The sides of the tubes were covered with drops of water. Pressure almost none.

In the corresponding experiments with carvacrol, zinc-ammonium-chloride and ammonium-chloride, the pressure in tubes was considerable, the escaping gas possessed an agreeable aromatic odor and burned with a feeble flame. In these experiments more carbonized substance was formed than when the bromine compounds were employed. The products were isolated by previously described methods.

Carvacrylamine : —

$$N\begin{cases} C_{10}H_{13} \\ H \\ H \end{cases} = C_{10}H_{13}NH_2,$$

a yellowish-brown oil distilled by the first distillation at 240°–245°, leaving a small quantity of carbonized substance in the bulb; by the second, almost entirely between 241°–242°. The freshly distilled amine was nearly colorless, and upon exposure to the air turned yellow, then brown. It solidified and crystallized indistinctly at −16° C.

The analysis gave the following result : —

0.1497 gr. substance gave 0.4448 gr. carbon-dioxide, and 0.1351 gr. water, corresponding to 0.1213 gr. C. and 0.1501 gr. H.

Calculated for $C_{20}H_{27}N$.			Found.
C_{10}	120	80.54 per cent	81.03 per cent.
H_{15}	15	10.06 "	10.02 "
N	14	9.40 "	—— "
	163	100.00 per cent.	

Dicarvacrylamine: —

$$N\begin{cases} C_{10}H_{13} \\ C_{10}H_{13} \\ H \end{cases} = C_{20}H_{26}NH.$$

The raw, dark-colored, oily, secondary amine was distilled with superheated steam; the oil which came over in light golden drops and floated on the surface of the milky distillate was extracted with ether, dried over caustic potash and finally redistilled in vacuum. The greater portion distilled at 344°–348°; above this temperature decomposition took place. The fraction so distilling was almost colorless, had a most pleasant odor, dissolved readily in alcohol, ether, and benzol. At −18° C. the body retained the consistence of an oil. With concentrated sulphuric acid, a golden tint was produced which changed by the addition of a nitrate or nitrite, first, to green-blue, then to blue.

The analysis gave the following result: —

I. 0.1856 gr. substance gave 0.5814 gr. carbon-dioxide and 0.1619 gr. water, corresponding to 0.15856 gr. C. and 0.01798 gr. H.

II. 0.2322 gr. substance gave 10.5 cc. of moist nitrogen (thermometer 22° C., barometer 720 mm.) equal to 0.011396 gr. N.

Calculated for $C_{20}H_{27}N$.			Found.
C_{20}	— 240 — 85.41 per cent	. . . .	85.45 per cent.
H_{27}	— 27 — 9.61 "	. . . .	9.68 "
N	— 14 — 4.98 "	. . . .	4.90 "
	281 — 100.00 per cent.		

The percentages of carbonized substance, unchanged phenol as well as the bases obtained by corresponding experiments with the bromides and chlorides of zinc and ammonium, are here tabulated.

Carvacrol.	Zinc-ammonium-bromide.			Zinc-ammonium-chloride.		
	I.	II.	III.	I.	II.	III.
Carvacrylamine . .	30	35	36	28	27	25.6 per cent.
Dicarvacrylamine . .	40	38	39	32.1	29.6	27.4 "
Unchanged Phenol .	24.2	20	20.3	32	34.3	40.2 "
Carbonized substance	0.5	0.9	1	3	4.1	4.5 "

Derivatives of Carvacrylamine.

The Platinum Double Salt — $(C_{10}H_{13}NH_2 . HCl)_2 Pt Cl_4$ — was made by precipitating a hydrochloric acid solution of the amine with platinum-chloride. A yellow precipitate in the form of needles shot out at once from the golden-colored solution. These needles were recrystallized from alcohol in beautiful prisms, grouped in clusters. The crystals were dissolved with difficulty in hot water, but readily in hot alcohol and benzol.

An analysis of the salt dried at 100°–110° gave the following result: —

0.5024 gr. substance gave 0.1384 gr. platinum.

Calculated for $(C_{10}H_{13}NH_2 . HCl)_2 PtCl_4$.	Found.
27.48 per cent Pt.	27.55 per cent Pt.

Acetylcarvacrylamine: —

$$N\begin{cases} C_{10}H_{13} \\ C_2H_3O \\ H \end{cases} = C_{12}H_{17}NO$$

was formed readily by the action of acetic anhydride upon a calculated amount of the base. Action began at once, the solution became quite brown in color. To insure complete reaction, the substances were warmed for an hour at 130°.

The white mass which separated was crystallized from a mixture of alcohol and water in glistening white plates — melting at 115°. The crystals dissolved in an abundance of hot water, more readily in benzol than in ether, with readiness in hot alcohol.

Benzoylcarvacrylamine : —

$$N\begin{cases} C_{10}H_{13} \\ C_7H_5O \\ H \end{cases} = C_{17}H_{19}NO.$$

To form this compound a gram of the base was treated with an excess of benzoyl-chloride. Action took place immediately with evolution of hydrochloric acid. Upon warming, a further evolution of gas took place, and a crystalline mass of a yellowish tint was formed. Upon treating the mass with sodium carbonate it became white and was crystallized from hot benzol in shining crystals.

The crystals had the appearance of flat rhombs and feathery aggregates, were insoluble in hot water, with difficulty soluble in cold, easily in hot alcohol, but readily soluble in ether or benzol. Melting point 102°.

The analysis gave the following result : —

0.2184 gr. substance gave 0.6455 gr. carbon-dioxide, and 0.1500 gr. water, equal to 0.1760 gr. C. and 0.1666 gr. H.

Calculated for $C_{17}H_{19}NO$.				Found.	
C_{17}	— 204 —	80.63	per cent	80.58	per cent.
H_{19}	— 19 —	7.51	"	7.63	"
N	— 14 —	5.53	"	——	"
O	— 16 —	6.33	"	——	"
	253 —	100.00	per cent.		

Derivatives of Dicarvacrylamine.

The Platinum Double Salt — $(C_{20}H_{26}NH \,.\, HCl)_2\,Pt\,Cl_4$ — was prepared after the method used with the double salt of dithymylamine. The product so obtained was more crystalline than the isomeric salt, and after thorough washing and drying over sulphuric acid in vacuum, granular feathery aggregates of a beautiful golden color were formed.

The analysis of the salt dried at 100° gave the following result : —

0.2039 gr. substance gave 0.0464 gr. platinum.

Calculated for $(C_{20}H_{26}NH.HCl)_2PtCl_4$.	Found.
20.01 per cent Pt.	19.93 per cent Pt.

The *Hydrochloric Acid Salt* — $C_{20}H_{26}NH.HCl$ — formed most readily by conducting dry hydrochloric acid gas into a solution of the base in benzol. The salt was precipitated as a white granular crystalline mass, which was easily decomposed by water with separation of the base. The mass was filtered off, washed with benzol, and dried over sulphuric acid in vacuum. An analysis of the salt dried at 100° gave the following result : —

0.2464 gr. substance gave 0.1110 gr. silver chloride.

Calculated for $C_{20}H_{26}NH.HCl$.	Found.
11.18 per cent Cl.	11.15 per cent Cl.

Acctyldicarvacrylamine : —

$$N\begin{cases} C_{10}H_{13} \\ C_{10}H_{13} \\ C_2H_3O \end{cases} = C_{22}H_{29}NO.$$

The method used in the preparation of this body was the same as that used with the isomeric phenols. The glistening white scales obtained by crystallizing the product of the reaction in hot benzol were easily soluble in hot alcohol and in hot ligroin. Melting point, 78°.

The combustion gave the following result : —

0.2171 gr. substance gave 0.6480 gr. carbon-dioxide, and 0.1787 gr. water corresponding to 0.1767 gr. C. and 0.0198 gr. H.

Calculated for $C_{22}H_{29}NO$.				Found.	
C_{22}	— 264 —	81.73	per cent	81.38	per cent.
H_{29}	— 29 —	8.98	"	9.12	"
N	— 14 —	4.34	"	——	"
O	— 16 —	4.95	"	——	"
	323 —	100.00	per cent.		

Summary of Results.

The above experiments have shown that primary and secondary amines, together with carbonized substance, are produced when isobutylphenol, isoamylphenol, thymol and carvacrol are heated to 320°–360° with an excess of zinc-ammonium-bromide and ammonium-bromide or with the chlorides of zinc and ammonium.

Better results were obtained by using the bromine compounds.

The percentage of amines reached its maximum — seventy per cent — with carvacrol; the three other phenols yielding only forty-five to sixty per cent of the original substance.

In a manner similar to that used with the cresols and xylenols, these more complicated homologues of benzol-phenol have been converted into amines; but the bases so obtained have not formed chemical combinations so readily as the bases obtained from the phenols of simpler form.

So far as I know, the primary base — carvacrylamine — has not been previously described.[1] When freshly distilled, it is an almost colorless oil of a disagreeable odor; boiling point, 241°–242°. In a freezing mixture it became solid with an indistinctly crystalline structure. Its derivatives are beautifully crystalline. For further identification of the amine, its platinochloride and acetyl and benzoyl derivatives were studied.

The secondary bases, namely, diphenisobutylamine, diphenisamylamine, dithymylamine and dicarvacrylamine, are oily liquids which boil above 300°, are nearly colorless when first distilled, but color on exposure to the air. The dicarvacryl and dithymyl bases have a most agreeable odor. In order to study more closely the character of these secondary amines, the platinum double salt and the acetyl and benzoyl

[1] Since these investigations were made, Söderbaum and Widman have obtained Cymidin (Carvacrylamine) by another method. See Berichte der Deutschen chem. Gesellschaft XXI., 2127.

compounds were prepared. With the exception of the platinochloride of dithymylamine, the products were well crystallized.

A summary of the work would be incomplete without mentioning the fact, that efforts to obtain picrates of diphenisamylamine and dithymylamine were unsuccessful. An analysis of the products obtained by the action of an alcoholic solution of picric acid upon an alcoholic solution of the aforementioned bases corresponded quite closely with the theory for picric acid. In crystal form and melting point the substances exhibited marked differences. The products will be further examined, with the hope of determining what molecular arrangement took place.

II. — *Some Observations upon the Sentence-Length in English Prose.*

By L. A. SHERMAN.

So far as I am aware, no special investigation of the sentence-length in English has yet been made. It has therefore seemed on the whole worth while, pending a somewhat extended examination of chief authors, to publish some of the results already established, with statistical illustrations from representative periods.

It is, I think, usually taken for granted that there is a progressive diminution of length in the English sentence from the earliest writers until the present; in other words, that it is the relative modernness of an author which determines the lightness of his style. But, quite contrary to any such assumption or expectation, we find that the determining factor in each case is the relative capacity of the author to respond to what may be called the sentence-sense in his own mind.

The English instinct of sentence-length, in effect, is this, — Say or write no more in one sentence than has been brought before the mind in a single view, or single judgment. This also includes all that is meant by "Unity" in Rhetoric.

This sense or impulse to write as one speaks and to speak as one thinks is obeyed in general with marvellous fidelity by our early poets. To take one of the most familiar of possible illustrations, it were hard indeed to find anywhere a more natural management of the sentence than in Chaucer's Prologue to his Canterbury Tales. Note how easily the scenes glide before the mind, and how naturally the sentence shifts when each is finished: —

Whan that Aprille with hise shoures soote
The droghte of March hath perced to the roote,
And bathed every veyne in swich licour
Of which vertu engendred is the flour;
Whan Zephirus eek with his swete breeth
Inspired hath in every holt and heeth
The tendre croppes and the yonge sonne
Hath in the Ram his halfe cours yronne,
And smale foweles maken melodye
That slepen al the nyght with open eye —
So priketh hem Nature in hir corages —

Then when his protasis is complete, with equal naturalness the real proposition of his introduction is developed: —

Thanne longen folk to gon on pilgrimages;
And palmeres for to seken straunge strondes
To fernwe halwes, kowthe in sondry londes;
And specially, from every shires ende
Of Engelond, to Canturbury they wende
The hooly blisful martir for to seke
That hem hath holpen whan that they were seeke.

But are these eighteen lines in reality one sentence, or period, as declared by the punctuation: or what shall be a sentence if this is not? Chaucer's answer would seem to be, that each one of the clauses which help make up the whole passage is in itself a sentence to the reader, since it occupies his mind completely for the time being. But because it is introduced, not for the sake of the truth it contains as an end in itself, but in order to prepare the way for some more important declaration, the mind of the reader must have notice to continue its expectation until the final truth is reached. In other words, though each single clause on going into effect in the reader's mind makes with its imagery a complete occupation, it does not convey all that Chaucer had in his mind at the time to say: his meaning is "complex." He has certain single, simple situations which might have made single, simple sentences if introduced as such; but all the while he is inditing these he is keeping them subordinate to an ulterior purpose to which he will make them preliminary or circum-

stantial. Hence are they semicolon-clauses, — exactly such as any writer since the invention of printing and punctuation would have made them.

But this natural subordination in which Chaucer everywhere equals any modern appears in his poetry alone; in his prose the sentence-instinct fails him. No longer is there any suspension of the circumstantial clauses, but all the sentences are thrown together blindly, and often in co-ordinate form as thus: "Certes," quod Melibee, "I se wel that ye enforce yow muchel by wordes to overcome me in swich manere that I shal nat venge me of myne enemys, shewynge me the perils and the yveles that myghten falle of this vengeance; but whoso wolde considere in alle vengeances the perils and yveles that myghte sewe of vengeance takynge, a man wolde nevere take vengeance; and that were harm, for by the vengeance takynge been the wikked men dissevered fro the goode men and they that han wyl to do wikkednesse restreyne hir wikked purpos whan they seen the punyssynge and chastisynge of the trespassours." With Spenser, who writes almost as well in poetry as Chaucer, the case is even worse.[1] Strange enough is it that all the earlier great English poets as a rule (save Milton) conform unerringly to the natural sentence-form in meter, but when they lay verse-forms aside write almost unreadable prose. With the exclusive writers of prose, as we shall see, the case is often even worse. There is clearly as yet no English sense of what a prose sentence should be at all. That was to be painfully and wastefully evolved in succeeding generations.

[1] Cf. the following average sentence from his *View of the Present State of Ireland:* "These therefore, though pollicye would turne them backe agayne that they might the rather consume and afflicte the other rebells, yet in a pityfull commiseration I could wish them to be receaved; the rather for that this base sorte people doth not for the most parte rebell of himself, having noe harte therunto, but is of force drawen by the graunde rebells into theyr actions, and carryed away with the vyolence of the streame, els he should be sure to loose all that he hath, and perhaps his life also; the which nowe he carryeth unto them, in hope to enjoy them there, but he is there by the strong rebells themselves soone turned out of all, soe that the constraynte herof may in him deserve pardon."

It is to an historical outline of this development of English prose that the present pages are devoted. As has been said already, there is no regular or consistent approach to the modern sentence-form, each author ranging and ranking not according to the sense and fashion of his age so much as according to the quickness of his own instinct of sentence-propriety. Chaucer, for instance, is far in advance of any writer of reputation — except Bacon — until late in the seventeenth century, surpassing Dryden in brevity even then; while Swift and Bunyan rank almost with the moderns.

As introductory to the following statistics of sentence-aggregates in representative authors, it should be said that, though in general clauses have been taken just as they were left by their authors, it has yet been necessary in some instances to amend their form. In some of the earlier writers it not infrequently happens that we are stopped by a period before the predicate is reached. Not infrequently also two independent sentences will appear as if parts of one. But only in such cases as these where the writer defeats his own purpose of pretending to have a meaning, that any hand has been laid upon the texts; and this with no author after Sidney.

Passing over the Travels of Sir John Mandeville (which, not composed in English, borrows its sentence-forms from the French or perhaps the Latin original) we begin our examination of English prose with Chaucer. From his superior literary genius and his general good sense it perhaps might have been predicted that he would show the extraordinarily low averages which we find. In the Tale of Melibeus the number of words in the first fifty sentences is 2572; in the next fifty, 2536; in the next fifty, 2199; and in the next, 2099. But now in the next fifty sentences the sum rises to 2640, and the next stops at 2338, while of the remaining forty the sum is 2345. Sum total of the words in Melibeus, 16,659; of sentences, 340. Average of words per sentence in this Tale, $48\frac{339}{340}$.

But in the Persouns Tale we encounter very different

averages. In the first hundred sentences the sum of words is 4062, but rises in the second to 4803, and falls in the third, fourth, and fifth respectively to 3735, 3163, and 2905; ascends again in the three remaining hundreds, 3402, 3386, and 3834. Twenty-five sentences remain, which contribute 1215 words. Sum total of the words in the Persouns Tale, 30,505; average of words per sentence, $36\frac{80}{825}$.[1] Complete average for Chaucer, $40\frac{564}{1165}$.

We next take up Sir Thomas More's History of Richard III. Here the sense of sentence-form is of the feeblest. Probably not less than forty per cent of the clauses had to be rearranged. Instances of adverb-clauses standing alone as complete sentences are especially frequent. Final average of 24,882 words in 472 [2] sentences, $52\frac{169}{236}$ words.

A partial examination of Lyly's Euphues resulted in nearly the same average as that of More, namely, 52.22 words, and his sentences stand almost in equal need of repairs. Next in Roger Ascham we meet with the first real promise of a coming English prose-style. His writings clearly enough reveal that in him the sense of sentence-form is fairly awake. A test-examination of the Toxophilus discovers an average as low as 42. But in Sidney's Defense of Poesy we go backward. Here a like preliminary examination yields 50.65 words. In Joseph Hall's Specialties, and Hard Measure (written between 1640 and 1650) an average as high as 58.61 is obtained. This nearly equals a result computed from Fabian (60.30), whose works were written before 1512.

In Richard Hooker we find signs of a general advance in the art of writing English prose. The style of the Ecclesiastical Polity of course is heavy from the nature of the subject; but the sentence-average in the First Book is only 44. Hooker

[1] This disparity in sentence-length, it is believed, is unparalleled elsewhere in the literature. All other writers yet examined respectively accord in different compositions after a few hundred sentences. One is driven to conclude there may have been closer adherence to the original in the latter Tale.

[2] Those portions of the History not written originally by More in English, but translated from his similar work in Latin, were of course left out of the computation.

is the first English prosaist who succeeds in arranging his clauses so as to leave no uncertainty where the emphasis should rest. In Bacon we find of course not only pith and point, but another quality hitherto unknown, — economy of predication. For the most part he shows large advance from Hooker in sense of the proper correlation of clauses. The average of the Essays is only 28.

In Dryden, though in him we first meet with the modern quality of readableness, we go backward towards the early English vice of expatiation.[1] A preliminary examination of his sentences discovers an average of 45.26 words. In like manner Bunyan yields 37.50. Barring the expressions by which he affects the style of the Bible, he easily ranks with late next-century authors. Much of Bunyan is wrongly punctuated, many semicolon-clauses being really independent statements. It is therefore proposed to repunctuate his works throughout, preparatory to a complete computation of the sentence-average. This, it may confidently be predicted, will be low, probably not exceeding the aggregate of Bacon. In Milton we again find the sentence-instinct almost wanting, a fault which is nearly equally conspicuous in his poetry.[2] For him no less average than 60.80 was found. A partial examination of Sir Thomas Browne yielded 33.40; of Thomas Fuller, 32.80. Addison in the Spectator registers 37.90; Junius descends to 31.90.

[1] Cf. the following from his *Essay on Dramatic Poesy:* "And that all this is practicable, I can produce for examples many of our English plays: as THE MAID'S TRAGEDY, THE ALCHEMIST, THE SILENT WOMAN: I was going to have named THE FOX, but that the unity of design seems not exactly observed in it; for there appear two actions in the play; the first naturally ending with the fourth act; the second forced from it in the fifth: which yet is the less to be condemned in him, because the disguise of Volpone, though it suited not with his character as a crafty or covetous person, agreed well enough with that of a voluptuary; and by it the poet gained the end at which he aimed, the punishment of vice, and the reward of virtue, both which that disguise produced." — *Malone's ed. Dryden's Prose Works*, vol. I., pt. II., p. 89.

[2] Cf. the opening lines of Book II. in the P. L. Here Milton has clearly no suspicion of his opportunity to make one of the finest periods in the poem by placing full stop at "sat," or, if the emphasis is on the following phrase, at least at "eminence."

We now pass to the modern age. Of course, thanks to the conventionalizing spirit of the eighteenth century, we find there is now a fashion in sentences as well as in other things, and no well-advised reader — not to say writer — but is conscious of its demands. Perhaps De Quincey may be taken as the best connecting name. For he is a professional and writes *ex cathedra* like those of the stately generation before him, yet is filled to the full with the spirit of the new century. He writes a somewhat long sentence, and at first seems insensible to the instinct of form. But if we examine his style closely we soon discover there is great economy of predication, and of a sort very different from Bacon's. How would Hooker, or Dryden, or even Bunyan have managed such sentences as these? "To intercept the evil whilst yet in elementary stages of formation, was the true policy; whereas I in my blindness sought only for some mitigation to the evil when already formed, and past all reach of interception." — "With a government capable of frauds like these, and a people (at least in the mandarin class) trained through centuries to a conformity of temper with their government, we shall find, in the event of any more extended intercourse with China, the greatest difficulty in maintaining the first equations of rank and privilege." De Quincey is evidently obeying an impulse to husband his verbs and concentrate his reader's attention upon the principal predication. But he is in no wise burdened with the sense of obligation to write short and crisp and ringing sentences. He is in reality behind his age, hence cannot catch its spirit or be its leader. The task of materializing and interpreting the new English rhetorical impulse was to fall to the lot of a contemporary and every way equal genius. De Quincey's sentence-length as exhibited in the first thousand sentences of the Opium Eater is 32.28.

Who then is the true nineteenth-century leader to whom De Quincey gives place? A search for the sentence-minimum among the literature-makers of the day reveals him. It is in the style of Lord Macaulay that the new Rhetoric finds its interpretation and example. Hitherto had the rhe-

torical habit and method been, as we may say, synthetic. Each writer, like Chaucer in the sentence from the Prologue above quoted, strove to mass his meaning and then express it in a sentence which should span its entire content. Now the rhetorical instinct shows a tendency to analysis. Instead of congesting the meaning proposed for expression Macaulay dissects it, summoning back to his conception as he proceeds to write only so much at a time as he may amply realize in a single view, then making out of the product in each case a complete period. 'One *mind-full* at a time for the author, and the same embodied *in each sentence* for the reader' is actually the rule that Macaulay obeys. And as the reader is manifestly at a disadvantage in the transaction as regards the author, the impulse was fortunately to reduce and simplify the imagery, — whether direct or symbolic, — to be constructed by the imagination of the former, to whom the meaning will be most likely new. Thus is a margin saved for extra clearness and energy. Yet nothing of this is done consciously for the sake of the reader, but wholly to satisfy a certain something in the author's mind. This impulse to analyze and energize, — to keep the author's meaning out of the reach of the reader save one notion at a time, leads Macaulay especially in his earlier compositions to go against the fashion of his day and fall foul of the semicolon as a help to thought. Hence such sentences as these are not infrequent: "Like the former he was timid and pliable, artful and mean. But like the latter he had a country." — "Shallow is a fool. But his animal spirits supply, to a certain degree, the place of cleverness." — "There are errors in these works. But they are errors which a writer, situated like Machiavelli, could scarcely avoid." [1]

[1] This method of punctuation is manifestly truer to the thought, and will perhaps prevail in time. We are naturally about as loath to give up the eighteenth-century punctuation as its standard spelling. As to the excuse of subordinate conjunctions for making semicolon clauses, we can go back and learn something from old Homer. When a sentence is to follow as the explanation of the preceding statement, it is his favorite practice to introduce it without a 'because' or 'since,'

Thus was it that the normal English prose sentence was at last evolved. Everywhere the literary sense of the progressive, best English speakers and writers endorsed and adopted it without question. And why not? It brought the language of books and the language of men together, and cancelled the last mischief of the Renaissance. Yet the reform demanded very simple things. 'Write *as* you speak, speak *as* you think;' or, more technically, 'Bring only a single phase of the subject before the mind in separate view: utter it in a simple sentence: avoid modifying clauses if possible,'—these were alike its postulates and rules, and they remain the essential principles of English rhetoric to-day. But strangely enough these were destined to be the offspring of a twin paternity. At the same time also in America was a like impulse working out the same result independently, through the genius of Channing.[1] Though far less radical, subjective, and spectacular, he is yet unmistakably obedient to the same instinct of sentence thought and form, and walks shoulder to shoulder with Macaulay in the new path. Both are at least in earnest for reform and mean to be consistent, but sometimes go far astray. Whenever they despair of turning out a short, sharp sentence they are only too apt to cast off all restraint and write in the old way. In spite of the havoc thus made with their sentence aggregates, Macaulay's average in Machiavelli is 23.65, and Channing's in Self Culture, 25.42. A repunctuation of Macaulay in accordance with conventional rules to match Channing would raise the former aggregate to 25.10.

But though Macaulay and Channing do not live up to their privileges, the standard at least is fixed and the way to im-

and thus allow the reader the satisfaction of perceiving the relation for himself. Still Homer does not slight conjunctions: he merely avoids abusing them.

[1] Although Channing did not attract attention as a stylist until two or three years after he must have read Macaulay's *Milton*, he had nevertheless produced compositions in the same style as that of his papers on Napoleon at least fifteen years earlier. See especially his *Duties of the Citizen in Times of Trial or Danger* (1812), and *War; Discourse before the Congregational Ministers of Mass.* (1816).

provement open. Searching for those who shall evince it by the test of sentence-shortening as before, we are brought to the group of the New England Transcendentalists. Here in Emerson we find larger meaning and less sentence, the average of the Divinity College Address being 20.92. Emerson at least tries hard to keep the whole law of rhetorical singleness and simplicity, but he also lapses at times egregiously. There is still a promise which is unfulfilled. Following the track of progress further, we are led on through Alcott and find at last the present limit of evolution and the literary sentence-minimum in Bartol. Here there is perhaps somewhat of laconism, but it is wholly in the thought — not at all in the sentence-forms. Channing would have expressed the same meaning in sentences equally concise with never the suggestion of staccato effect, and as a matter of fact often runs through a series of periods as short as Bartol's without jolt or jar. The following is an average sample of the latter's style: "He belonged to no class. He was not, for any system of theology or philosophy, either leader or led. He will be identified with no dogma or reform other or less than of the way of regarding and treating those whom he served. He is the sailor's representative. Those other great ones were landsmen. He stands for the sea. He is the great delegate from the waves to the congress of intellect. In thousands of ships, by almost millions of mariners, to whom by baptism of the Holy Ghost he was father who christened their babes, his fame was borne to every port. The sailor says he has been where the United States has not been heard of, but never where Father Taylor had not. How did a man, — no discoverer in the kingdom of ideas, no martyr of principle, nor marshal of opinion, — so touch the common mind?"[1] But note the difference in Channing: "To one who reflects, there is something very shocking in these decorations of war. If men must fight, let them wear the badges which become their craft. It would shock us to see a hangman dressed out

[1] *Radical Problems*, pp. 324, 325.

in scarf and epaulette, and marching with merry music to the place of punishment. The soldier has a sadder work than the hangman. His office is not to despatch occasionally a single criminal; he goes to the slaughter of thousands as free from crime as himself. The sword is worn as an ornament; and yet its use is to pierce the heart of a fellow-creature. As well might the butcher parade before us his knife, or the executioner his axe or halter. Allow war to be necessary, still it is a horrible necessity, a work to fill a good man with anguish of spirit. Shall it be turned into an occasion of pomp and merriment?"[1] In the paper entitled *Genius: Father Taylor*, from which the former passage is cited, we compute for Bartol the average of 15.97 words per sentence.

But it will be evident that the evolution of sentential economy since Hooker has not proceeded so much in the way of shortening simple sentences — where natural limitations must be quickly reached — as in the decrease of modifying clauses. The decline in the use of complex (or compound) sentences is thus illustrated. In the first book of Hooker's Laws of Ecclesiastical Polity there are 720 sentences, but only 93 are uninvolved: per cent of simple sentences, 13. In Macaulay there are properly 386 simple out of every 949: per cent of simple, 41. In Channing the ratio is 281 to 704, and the per cent, 40. In Emerson the per cent is 46; in Bartol, 52. Moreover in Bartol there are only 65 semicolon clauses in 459 periods, and only five sentences occur in which the semicolon is used twice. But in Hooker as many as six semicolons may upon occasion be found in a single sentence.

There is also a further element in the movement towards sentential simplification, — the tendency to think and to cast the sentence in direct, pictorial forms rather than — as once — in symbolic or abstract; but the statistics of this change are too incomplete to quote. Moreover, to avoid complication, no consistent attempt has yet been made to

[1] *Lecture on War* (Works, vol. v.), pp. 144, 145.

determine the sentence average in works of fiction. Here of course the matter is mainly narrative or descriptive, thus reaching the imagination of the reader more directly; also much of the language is quotation and in dialogue. The sentence average is nevertheless often high, as illustrated by De Foe (68; but in this author largely due to the abuse of the semicolon). In the heavier sort of composition, as elaborate criticism, where the thought is almost exclusively symbolic, it is noticeable that the sentence average rises. The approximate aggregate of Matthew Arnold is 37; of Mr. Lowell, 38; of Higginson, 33; and of Walter Pater, 36.5.

As to the implied fact of a literary sentence-rhythmus which remains constant in standard writers through different periods of composition, a few statistics further will serve both for illustration and evidence. Three hundred sentences will generally reveal the sentence-rhythm of any writer who has achieved a style. Finding that this for De Quincey in the Opium Eater (pub. 1821) is 32, we proceed to test it by averages of his Toryism, Whiggism, and Radicalism (1835), California (1852), and China (1857), and find 31.32 for the first, 30.20 for the second, and 31.35 for the third respectively. Again, starting with the 23.65 from Machiavelli (1827) for Macaulay, we find 24.36 in vol. I. of the History (written about 1845), 24.14 in vol. V., and 24 in the Pitt essay (1859). There is little variation between the respective averages taken by the hundreds in the authors examined, De Quincey showing greatest range (37.09–28.97), Channing and Bartol least (27.48–24.13 and 17.46–14.08 respectively).

It therefore seems clear that mathematics can be shown to sustain a certain relation to rhetoric, and may aid in determining its laws. But what, as a psychological fact, sentence-rhythm really means, how far it is common to authors in English and other literatures, and hence a necessary element of style, are questions yet to be considered. It is in order to hasten their treatment by other hands that these observations are published at the present time.

III. — *On the Sounds and Inflections of the Cyprian Dialect.*

By CHARLES E. BENNETT.

Dr. Isaac H. Hall in the *Proceedings of the American Oriental Society* for October, 1877, stated the wants existing at that stage of Cyprian study as 1) a complete collection of inscriptions, 2) a correct syllabary, 3) a compilation of the best interpretations; after which, grammar and vocabulary. The first and second of these wants have been admirably met by Deecke's publication of the existing inscriptions with an appended syllabary in Collitz's *Sammlung der Griechischen Dialekt-Inschriften*. Bd. I., Heft 1, 1883. The excellent foundation laid by this brilliant and thorough work has encouraged the present attempt at a systematic treatment of the grammar of the dialect.

The inscriptions made use of, in addition to those published in Collitz's *Sammlung* (212 in number), have been the following:—

1. The two inscriptions with fragments of two others published by Sayce in the *Berliner Philologische Wochenschrift*, 1884, No. 21.

2. Three inscriptions published by Hans Voigt in the *Studia Nicolaitana*, 1884.

3. Thirty inscriptions published by Deecke in the *Berliner Philologische Wochenschrift*, 1886, Nos. 41, 51, 52.

4. The two bilingual inscriptions of Tamassus, published by Deecke in the *Berliner Philologische Wochenschrift*, 1886, No. 42; 1887, No. 12.

5. Meister's new reading (suggested by Deecke) of inscription 41 in Collitz's *Sammlung*, in the *Berliner Philologische Wochenschrift*, 1887, No. 52.

6. The two inscriptions published by Deecke in *Bezzenberger's Beiträge*, xi., p. 315 f.

7. The reading of Collitz 134 as published by Prellwitz in *Bezzenberger's Beiträge*, ix., p. 172.

The inscriptions discovered in Cyprus during the last year have not as yet been published. It is to be hoped that they may add to our knowledge of the dialect.

As regards the inscriptions published by Deecke in Collitz's *Sammlung*, I have been compelled to doubt the general correctness of one or two of the longer ones, and mention this here that more weight may attach to what is urged below against particular forms occurring in these inscriptions. The inscriptions are Nos. 68, 69, and 126.

No. 68 is the longest of the inscriptions in the Cesnola collection in the Metropolitan Museum of Art, New York. The characters are quite clear in the main, to judge from Hall's fac-simile (*Journal of the American Oriental Society*, x., Plate iv., 13). The divisors are also plain. But unmistakable as several of the words of the inscription seem to be, *e.g.* χαίρετε, line 1; θεοῖς, line 2; ἄ(ν)θρωπε and θεῶι, line 3; πά(ν)τα and ἄ(ν)θρωποι, line 4, yet there are other words exceedingly doubtful, especially πότι, ῥήπω, ἐρείσης in line 1; ἐρεραμένα and πα(ν)τακόραστος in line 2; οὐ, ἐπισταῖς, ἀλ(λ)' ἔτυχ' ἁ κήρ in line 3; and κυμερῆναι and φρονέωἰ in line 4. These words are doubtful not only from the uncertainty of some of the characters contained in them, but more especially in view of their peculiar and irregular formation (see below for the separate cases). Furthermore the interpretation which Deecke seeks to establish for the whole inscription (see *Bezz. Beitr.*, vi., p. 78 ff.) is so forced and far-fetched, that I cannot believe the reading which yields such a sense to be correct. Several words as πότι and ἐπισταῖς, even if formally correct, cannot have the signification which Deecke attributes to them. Even the metrical structure of the verses (Deecke claims four hexameters) to which Deecke appeals for the confirmation of his results, is extremely harsh, involving the lengthening of the final ι of πότι, the lengthening of

the ι of τὶ, the shortening of the second syllable of ἐπῐ́σταῐς,[1] the crasis of θεῶι[2] ἀλ(λ)', besides two striking instances of hiatus.

In view of all these difficulties I cannot believe that the true reading of this difficult inscription has yet been reached, and I have therefore felt it unsafe to attempt to base any grammatical conclusions upon it, at least for the present. An irregularity or two in an inscription otherwise certain (*e.g.* αἴλων COLL. 60, 14; ἀζαθᾶι 59, 4) may be easily admitted; but to admit the existence of irregularities in any number in an inscription which is thereby made to yield only an unsatisfactory sense, reduces the probability of the correctness of any one word to a minimum.

No. 69, though apparently accepted without reservation by Hall (*Journal of the American Oriental Society*, xi., p. 221), seems to me to be open to precisely the same objections as urged against No. 68, including faulty metrical structure.

No. 126 is uncertain in several of the characters, and a number of the words as read by Deecke involve principles at variance with the usage of the dialect. The sense too is not convincing.

No. 41 is now taken by Deecke (*Bezz. Beitr.*, xi., p. 317) as reading from left to right, instead of from right to left as formerly. This gives an entirely different text, which has not yet been fully made out. Meister, following Deecke, has offered in the *Berliner Philologische Wochenschrift*, 1887, No. 52, a new reading of the inscription. But this is largely conjectural and to be accepted with caution.

Nos. 122–125 have been shown by Voigt (*Bezz. Beitr.*, ix., p. 168) to be in all likelihood cleverly executed forgeries, and will accordingly be left entirely out of consideration.

[1] This is Deecke's explanation, but it is simpler to assume aphæresis of the initial ε.

[2] Equally harsh would be the assumption of synizesis in θεῶι, with shortening before the initial vowel.

SOUNDS.

Vowels.

1.

ă.

Cyprian ă corresponds in general to primitive Greek ă and ă of the other dialects; *e.g.* *ἀ(ν)τί* Coll. 60, 5; *βασιλεύς* 17, 1; *ϝάναξ* 18, 1.

1. *δάλτον* Coll. 60, 26 appears in other dialects as *δέλτος*, being derived from the name of the letter delta (*τὸ δέλτα*). The Semitic name of the letter, however, is *daleth*, and it is doubtless owing to the influence of the Phœnician dialect of Cyprus, that the Cyprian Greeks employed the form *δάλτος* while the others said *δέλτος*.

2. Whether *ἰαρός* as in Doric, Elean, Bœotian, Thessalian and Arcadian (in the latter by the side of *ἱερός*) really exists in Cyprian is as yet uncertain. Of Deecke's three forms *Ἰαρώ(ν)δαν* Coll. 118; *ἰαρώτατος* 41, 1; and *jαρά* 72, 2, the first is entirely uncertain, and the second no longer maintained by Deecke himself (see *Bezz. Beitr.*, xi., p. 317). Only the last of the three, *jαρά*, can lay claim to serious attention. Whether *jαρά* can be for *ἰjαρά* (*i.e.* *ἰαρά*; see § 18, 1) is extremely doubtful. The only theory on which we could account for the disappearance of the initial ι, would be that it merged in some way with the final ι of the preceding *Ἀπόλ(λ)ωνι*. This may be correct in spite of the divisor, *viz.* *a · po · lo · ni · | ja · ra ·*. *Cf.* Coll. 26 *e · mi · | o · la · o ·* — *i.e.* possibly *ἠμὶ Ἰολάω*. *Cf.* Deecke, *Bezz. Beitr.*, vi., p. 83.

The regular Cyprian form is *ἱερός* (*ἰjερός*); *e.g.* *ἰjερεύς* Coll. 40; *ἱερῆος* 38, 3, *et pass.* None of the forms in *ἰjερ-* ever show any tendency to lose their initial vowel and to appear as *jερ-*.

As to the relation of the two forms ἱερός and ἰαρός, it seems quite probable, in view of Skrt. *iṣirá-*, that the latter is the primitive one, and that ἱερός is of secondary origin, with *-ερος* for *-αρος* after the analogy of φοβερός, δολερός, τρομερός, *etc.* This is Osthoff's view. See *Morphologische Untersuchungen*, iv., p. 149 ff. *Cf.* Meyer, *Gr. Gr.*,[2] § 94.

3. κατάστησε Coll. 127 cannot be a Cyprian form for κατέστᾱσε. The syllabic text seems to give *ka·ta·se·te·se·*. But the principles of the Cyprian syllabary would demand *ka·ta·sa·te·se·* to represent κατάστησε. This has led Voigt (*Bezz. Beitr.*, ix., p. 170) to conjecture a mistake of the stone-cutter, by which the *ta·* and *te·* in the second and fourth syllables were interchanged. In that case we should get *ka·te·se·ta·se·*, *i.e.* κατέστᾱσε, — the regular form, found frequently in other Cyprian inscriptions, *e.g.* Coll. 27, 2; 28.

4. Equally uncertain is πα(ν)τακόραστος, the reading proposed by Deecke in Coll. 68, 2, which he takes (*Bezz. Beitr.*, vi., p. 79) for παντακόρεστος, *i.e.* an emphatic ἀκόρεστος, for which Deecke compares παντάριστος, *etc.* But this change of ε to α is difficult to justify either physiologically or by any etymological combinations. Moreover, the word is suspicious in its composition. παντάριστος, which Deecke compares, is not sufficiently analogous to give much probability to his view of the word. We ought to have instances of some verbal beginning with alpha privative, to which παντ- has been prefixed, such as παντ-άβατος, παντ-άκριτος, before crediting so remarkable a form as παντ-α-κόρεστος, even did it occur with ε, and not α, as here. Hall (*Jour. Am. Or. Soc.*, xi., p. 220) after a careful re-examination of the inscription in New York reads here πά(ν)τα χώραι δῶς, taking Deecke's *sa·* as an *i·*, which he insists is correct. But δῶς surely cannot be right.

5. As to the possible origin of the peculiar ending *-αν*, in the acc. sing. of consonant stems, from *-ᾰν* (*cf.* ἔταμον for ἔ-τᾰμ-ον), see below, under *Inflections*, § 29, 1.

6. The α in μεμναμένοι Coll. 71, 2 must be taken as short, if the inscription (with Allen, *Versification in Greek Inscrip-*

tions, p. 46) is really to be regarded as metrical, which I doubt. Allen's view requires us to assume the addition of ἐγώ in verse 1 and the interpolation of either παι or εὖ in verse 2, along with the shortening of ᾱ to ᾰ in μεμναμένοι. This seems to me improbable, especially as thereby we gain only rough verses at best.

7. ῥέζαθι, Hall's reading of Coll. 70 (*Jour. Am. Or. Soc.*, xi., p. 221), which he takes as imperative of ῥέζω ("do sacrifice") is not in the smallest degree probable.

2.

ᾱ.

Cyprian ᾱ appears in εὐχωλᾶς Coll. 59, 4; ἔστᾱσαν 71; κᾶρυξ 65, *et pass.*

1. Final -ᾱι (*i.e.* -ᾳ) sometimes appears as ᾱ by the disappearance of the ι. For the examples, see below, under *Diphthongs*, § 11, 4, 2); 13, 3. Whether this change ever occurred in the interior of a word is extremely doubtful. Deecke thinks he finds an instance in Ἄδη Coll. 126, which he takes for Ἄιδηι (*i.e.* Ἄιδῃ). But the other difficulties of the passage τὸ(ν) δόμε(ν) Ἄ(ι)δη(ι) μισαάτω (see below, § 23, 4; 26, 3) are so great that small probability attaches to the correctness of this particular form.

3.

ε.

Instances of regular ε are γένοιτυ Coll. 60, 29; δεξίωι 37, 2; γε 56; ὀνέθηκε 72, 1.

1. Ἀριστοκρέτης Coll. 71; Στασικρέτεος (gen.) *Studia Nicolaitana*, p. 68; Τιμοκρέτεος *Berl. Phil. Woch.*, 1886, No. 41, II., viii.; Φιλοκρέτεος *ibid.* vii.; Τιμοκρέ[τεος] *Berl. Phil. Woch.*, 1886, No. 52, xxi., have ε where the other dialects have α (Ἀριστοκράτης *etc.*). Coll. 148 has . . . *ke · re · te · se* ·, apparently the conclusion of a proper name in -κρέτης, the first part of which is lost. Τιμοκρέτης Coll. 121 is very uncertain. Besides forms in -κρέτης forms in -κράτης also occur, *e.g.* Στασικράτης Coll. 17, 1; Στασικράτεος 18, 2.

These two formations represent two different forms of the suffix, *κρετ-* (strong) and *κρατ-* (weak). The original inflection,

nom. *-κρέτης*,
gen. *-κράτεος* (for **-κρατέος*, *i.e.* **-κr̥τέσος*),

has become modified by the "levelling" process (*cf.* Wheeler, *Analogy and the Scope of its Application in Language*, p. 21 ff.). In most Greek dialects the levelling took place in favor of the strong form *-κρετ-*. The Cyprian is peculiar in that it has levelled both ways, and so developed two inflections,

-κρέτης	*-κράτης*
-κρέτεος	*-κράτεος*

as shown by the above examples. (*Cf.* the Anglo-Saxon præterite *sang*, plural *sungun;* whence by similar levelling we get in modern English the two inflections *sang* and *sung*.) These were probably local differences. The close relationship of the Arcadian to the Cyprian is shown by the occurrence of proper names in both *-κρέτης* and *-κράτης* in that dialect also, *e.g.* Αὐτοκρέτης Coll. 1246, D, 17; Καλλικρέτης 1246, B, 15; Σωκρέτης 1231, C, 1; Καλλικρέτεος 1246, B, 3; Ἀριστοκράτης 1181, A, 12.

2. *κε* Coll. 60, 10, 23, 29. As primitive form of this particle we must assume *κέν* found in Homer and Lesbian. This was doubtless originally orthotone. By its side stood the weak form *κᾰ* (*i.e.* *κn̥*), enclitic, preserved in Bœotian, Cretan, Heraclean, Laconian, Elean, and Locrian. The form *κε* can only be explained (with Spitzer, *Laut. Ark. Dial.*, p. 8, and Osthoff, *Geschichte des Perfects im Indogermanischen*, p. 328) as a compromise between these two forms *κέν* and *κα*, a "*Contaminationsbildung.*" Parallel with Doric, Bœotian, and Elean *κᾰ*, as weak form of *κέν*, occurs Thessalian *μᾰ* (*i.e.* *μn̥*) as weak form of *μέν*, in the sense of δέ; *e.g.* Coll. 326, 3; 345, 20, *et pass.* *Cf.* Prellwitz, *De dialecto Thessalica*, p. 48; Meyer, *Gr. Gr.*,[2] § 24, 1). So also the Homeric and Attic *μά* as a particle of asseveration, *e.g.* *ναὶ μὰ τόδε σκῆπτρον* A 234; *ναὶ μὰ Δία* Ar. *Achar.* 88. Even in the

strong form *μέν*, we see in Homer, and occasionally in Attic, unmistakable evidence of the same affirmatory force, which was original to this particle.

That in these latter instances a "*Contaminationsbildung*" *μέ* has not been developed, must be ascribed to the early differentiation in the meanings of *μέν* and *μά*, and the consequent feeling that they were separate words, while *κέν* and *κα*, as long as they existed side by side, remained identical in signification.

3. Σελαμινί[ων], on coins, COLL. 176, 177, and Σελαμίνιος, Sayce in *Berl. Phil. Woch.*, 1884, No. 21, have ε, while Σαλαμίνιος, COLL. 148, represents the vulgar formation. The ε is probably attributable to Semitic influence. Deecke (on 176) compares Σελαμίν, a town in Galilee. The reading of COLL. 121, where Deecke suggests Σαλαμίνιος, is quite uncertain.

4. ὡρίσετυ (aor., = ὡρίσατο) COLL. 126, 1 has not developed its ε from α by any phonetic process, but is simply an illustration of the tendency, occasionally exhibited by the sigmatic aorist, to assume the thematic formation. (*Cf.* the same phenomenon in Homer, *e.g.* ἐπιβήσετο ζ 78; δύσετο Γ 328). Perhaps the Cyprian form is due directly to Homeric influence, as is undoubtedly the case with a number of words in this dialect. See § 20, 1.

5. ὁσέϳα COLL. 41, formerly taken by Deecke (*Bezz. Beitr.*, vi., p. 71 f.) for ὁσεία, another form of ὅσιος, is now read by him quite differently. See *Bezz. Beitr.*, xi., p. 317.

6. For Deecke's ε in the inflection of nouns in -εύς, η is rather to be written, *e.g.* βασιλῆϝος not βασιλέϝος. See below, under *Inflections*, § 28.

7. The Cyprian name of the town of Citium was Κέτιον, as seen in Κετίων (gen. sing.) COLL. 59, 1; Κετιῆϝες 60, 1. So also the abbreviated Κετι. 57 and Κε. 195 on a coin.

4.

η.

Cyprian η corresponds regularly to primitive Greek η and to η of the other dialects (except to that Attic and Ionic η

which has arisen from primitive Greek ᾱ), *e.g.* κασίγνητοι Coll. 71 ; ἰ̓ατῆραν 60, 3 ; Στασικράτης 17, 1.

1. ″Αδη is read by Deecke in Coll. 126. He takes it for ″Α(ι)δη(ι) (see § 2, 1 ; 13, 3, b). But this involves questionable principles in the case of the word itself, and the context is uncertain, so that Deecke's reading can only be regarded as conjectural. If correct, the word might be referred to Homeric influence. See § 20, 1.

2. Μοισίδημος Coll. 127 is very uncertain and can be correct only on the assumption that it is an Ionic name. On κατάστησε in the same inscription, see above, § 1, 3.

3. ἐρείσης Coll. 68, 2, taken by Deecke (*Bezz. Beitr.*, vi., p. 79) as gen. sing. of *″ἔρεισος, *i.e.* ἴσος (*cf.* Hom. νῆες ἔῖσαι for *ἐρῖσαι) cannot be correct in its η. The inscription, moreover, has elsewhere ᾱ, according to Deecke's own reading, *e.g.* θυατοῖς, ἁ. On other objections to the word, see below, under *Diphthongs*, § 12, 2.

4. ἰθονίκη Coll. 41, 3, formerly taken by Deecke (*Bezz. Beitr.*, vi., p. 71, 5) as for ἰθυνίκη ('straight victory'), disappears with the changed reading of that inscription (see *Bezz. Beitr.*, xi., p. 317).

5. The Ionic η in Hall's Εὐδᾱμωδότης (*Jour. Am. Or. Soc.*, xi., p. 229 = Coll. 101) cannot be correct, especially with the non-Ionic ᾱ in the second syllable. Τιμοδωρήτης *ibid.* p. 231 (Coll. 121) is doubtful and improbable.

6. Θεητονίκω Coll. 128 is apparently correct and, if so, to be explained as an Ionic name.

7. συλήση (for συλήσῃ ; see § 13, 3, b) Coll. 126, 2, is to be referred to συλέω, not συλάω, and hence its η presents no irregularity. The tendency of verbs originally ending in -άω to change to verbs in -έω is abundantly illustrated by the evidence of other dialects, *e.g.* Cretan μοικίων (*i.e.* μοιχέων) instead of μοικάων in the Gortynian inscription, II., 21 ; τιμίονσα (*i.e.* τιμέονσα) for τιμάονσα, Cauer, *Delectus*[2] 132, 22 ; συλέν (*i.e.* συλέ-εν) *Bulletin de Correspondance Hellénique*, 1885, 10, 8 (*cf.* Herforth, *De dialecto Cretica*, in *Dissertationes Halenses*, 1887, p. 279) ; Delphian συλέοντες Cauer, *Delectus*,[2] 211, 17, *et pass.*

8. The name of the city Idalium appears in Cyprian always as Ἠδάλιον; so Coll. 60, 1, 27; Ἠδαλίων (gen. sing.) 59, 1; Ἠδαλιοῖ (loc.) 62, 1; the inhabitants, Ἠδαλιῆϝες 60, 2; Ἠδαλιῆϳι 60, 31; abbreviated Ἠδαλι. 205; 206. In 60, 16, 26 Deecke (*ad loc.*) takes the syllable *e·* as standing for the adjective Ἠδάλια or Ἠδαλιακά. The only reason for transcribing the *e·* here as Ἠ- instead of Ἐ- lies in the fact that Ἰδάλιον as found in classic Greek always occurs with long initial vowel.

9. Deecke in Coll. 68, 1 reads ϝήπω as aor. subjunctive (= Att. εἴπω). Ahrens (*Philologus*, xxxvi., p. 17) had already proposed ϝέπω, which he explained as present indicative. Deecke suggested ϝήπω on metrical grounds. But the word cannot be correct. The Cyprian form would not be ϝήπω, as Deecke maintains (*Bezz. Beitr.*, vi., p. 79, 5), but ϝείπω, with ει as in Attic. Cyprian has η only as the equivalent of the Attic ει arising by compensative lengthening or contraction (see below, § 14, 7; 15) not as the equivalent of the genuine diphthong ει, which εἶπον had. That the ει did not arise here by contraction from **ἐ-ϝέ-ϝεπ-ον* or **ἔ-ϝε-ϝπ-ον*, but was the genuine diphthong ει, is shown by the Old Attic ΕΙΠΕΝ cia. iv., 22, b, 4 (450 b.c.) and frequently (see Meisterhans, *Grammatik der Attischen Inschriften*[1], p. 79, Anm. 648); also by Lesbian ϝείπην, the tradition in Alcæus 55, Sappho 28 (Bergk, *Poetae Lyrici Graeci*[3]).

10. On η for ηι (*i.e.* ῃ) in the 3d sing. of the subjunctive, see below, under *Diphthongs*, § 13, 3, b.

11. On η arising by contraction, see § 14, 7.

12. On η arising by compensative lengthening, see § 15.

5.

o.

Cyprian ο answers regularly to primitive Greek ο and to ο of the other dialects; *e.g.* δάλτον Coll. 60, 26; ὅτε 60, 1; τόδε 102; δοϝέναι 60, 5, 15; ἐπαγομενᾶν 59, 2.

1. ὀνέθηκε Coll. 72, 1; 74, 2; 75, 2; 120, 4 corresponds

to the vulgar *ἀνέθηκε*. Meister's conjecture of *ὀ(μ)βά[ντι]* (*Berl. Phil. Woch.*, 1887, No. 52, col. 1644) is not at all certain.

The origin of this monosyllabic form (frequent also in Lesbian, *e.g.* *ὀντέθην* COLL. 311, 8, 34; *ὀνθέντα* 311, 39, and in Thessalian, *e.g.* *ὀνγραφεῖ* COLL. 361, A, 11; B, 24; *ὀνγράψειν* 345, 21) is not clear. Whether *ἀν-ά*, *ἐν*, *ὀν-* represent three originally different forms of the same root (*i.e.* weak, strong, and ablaut), *ὀν-* finding its correspondent in German *an*, and *ἄν* being for *ϝην* (*cf.* Avestan *an-a*, for *ϝη-a*?) is a question too difficult and complicated to be entered into here. One thing, however, seems certain, that unless *ἄν* and *ὀν-* do stand to each other in the relation suggested, they are not etymologically connected, but originally different words, like *μετά*, *πεδά*; *σύν*, *ξύν*.

As to the use of *ἄν* and *ὀν-*, Meyer (*Gr. Gr.*,[2] § 55) thinks that *ὄν-* was the form originally employed before consonants, *ἄν* before vowels, and that *ὀν-* occurs before vowels, as in Thessalian and Cyprian, by a subsequent extension of its proper use. But this view lacks sufficient foundation. It is based upon too slender evidence, drawn from the Lesbian, which certainly admits of other interpretation (*cf.* Meister, *Griechische Dialekte*, I., p. 50).

Beside the above-quoted Cyprian forms with *ὀν-* we find also *ἀνέθηκε* COLL. 17, 2; 76, 1; in the second instance in an inscription from the same locality as 72; 74; 75, which all have *ὀνέθηκε*; also *ἀνε-*, *i.e.* *ἀνέθηκε*, in one of the fragments published by Sayce in *Berl. Phil. Woch.*, 1884, No. 21, where Sayce erroneously takes *ἀνε-* as *ἆνε*, comparing Homeric *ἦνον ὁδόν* γ 496. (*Cf.* Voigt, *Studia Nicolaitana*, p. 69.)

On *ὐνέθηκε*, COLL. 45, 3, for *ὀνέθηκε*, see below, § 9, 4.

2. The ο for υ in *ἰθονίκη*, Deecke's earlier reading of COLL. 41, disappears with the changed reading of that inscription (see *Bezz. Beitr.*, xi., p. 317).

3. *Ἀμό(ν)τα*, COLL. 147, if correct, would speak for the similarity of ο and υ in this dialect, especially before nasals. *Cf.* below, on *ὐνέθηκε*, § 9, 4.

6.

ω.

Except when arising from contraction or compensative lengthening, ω corresponds regularly to primitive Greek ω and ω of the other dialects, *e.g.* εὐχωλᾶς Coll. 59, 3; δώκοι 60, 16; *ἄνωγον* 60, 2.

1. On ω for ωι (*i.e.* ῳ) in final syllables, see § 13, 3, c.
2. On ω arising by contraction, see § 14, 5, 13.

7.

ι.

Cyprian ι corresponds in general to primitive Greek ι and to ι of the other dialects; *e.g.* *μισθῶν* Coll. 60, 4; δεξίωι 37, 2; *ἠμί* 20, 1, *ct pass.*

1. In a number of words ι has been changed from an original ε, *viz.* *ἐπιό(ν)τα* Coll. 60, 9, 19, 22; *ϝέπιϳα* (Ion. ἔπεα) 60, 26; *θιῶι* 37, 2; 61; 75, 2; *θιόν* 60, 27; *ἰό(ν)τα* 60, 23; ἴωσι 60, 31; *τέρχνιϳα* 60, 9, 18, 22; *ἀτελίϳα* 60, 23; *κατέθιϳαν* 60, 27; *θιῶι* *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

It will be seen that the phenomenon is confined to those cases where the ε was followed by α, ο, or ω; so also in Bœotian and Doric (*cf.* Bœotian *θιός* Coll. 425, *ct pass.*; *ἀνέθιαν* 414, 1; Heraclean *ἀδικίων* I, 138). The *j* in the Cyprian forms *κατέθιϳαν*, *ϝέπιϳα*, *ἀτελίϳα*, *τέρχνιϳα* has been developed after the change of ε to ι; see below, § 18, 1. *Cf.* Pamphylian *ἀ(ν)δριϳῶνα* for *ἀνδρεῶνα* Coll. 1267, 8.

Forms which retain the ε before α, ο, ω are about as frequent as those which change it to ι, *viz.* Ἐτεοδάμα Coll. 135; Θεάνωρ 126, 1; *θεῶ* 2, 1; 3, 1; 15, 1; 16; *θεῶι* 27, 1; 40, 2; *θεοῖς* 68, 2; *θεῶι* 68, 3; 68, 4; 72, 2; *θεῶ* 74, 1; 78; Θεοτίμων 42; Θεοκλέος 126, 1; Τιμοκλέϝεος 36; 64; Τιμοκλέος 35; Θεοδώρων 42; Στασικράτεος 18, 2; Τιμοκρέτεος *Berl. Phil. Woch.*, 1886, No. 41, ii.; *ibid.* viii.; Φιλοκρέτεος *ibid.* vii.; Εὐρά(ν)θεος Coll. 162; Στασικρέτεος *Studia Nicolaitana*, p. 68.

The change from ε to ι is confined almost exclusively to the two inscriptions Coll. 60, 61, both from Idalion. Outside of these it is found only three times, always in *θεός*, *viz.* *θιῶι* Coll. 37, 2; *θι[ῶι]* 75, 2; *θιῶι Berl. Phil. Woch.*, 1886, No. 42, col. 1323. Of these the first is from Palaipaphos, the second from Athienu; the last from Tamassus. Spitzer's statement therefore (*Laut. Ark. Dial.*, p. 16) that every ε before α or ο becomes ι in Cyprian, was evidently a conclusion drawn from the Idalian Bronze Tablet (Coll. 60) alone, and needs revision accordingly.

On *ἀτελήν* Coll. 60, 10 (acc. sing. from *ἀτελής*, where we should expect *ἀτελίja* for *ἀτελέα*; *cf.* acc. plu. *ἀτελίja* in line 23) see below, under *Contraction*, § 14, 6, and *Declension*, § 29, 8.

2. Another peculiarity is the preposition *ἰν* for *ἐν*. This occurs always in the form *ἰ(ν)* (see § 23, 2), *viz.* in Coll. 17, 2; 27, 2; 28; 31, 4; 37, 3; 59, 4; 60, 1, 3, 8, 9, 17, 20, 31; 72, 2 (twice, once with the dative and once with the accusative); probably also in the compound *ἰναλαλισμένα* 60, 26; very questionable is *ἰνιπά* 126, 3.

The closely related Arcadian dialect also has the same peculiarity, *e.g.* *ἰν* Coll. 1222, 2, 4, 20, 37, *et pass.*; the compounds *ἴγγυος* (*ἔγγυος*) 1222, 36; *ἰγκεχηρήκοι* (Att. *ἐγκεχειρήκοι*) 1222, 12; *ἰμφαῖνεν* (Att. *ἐμφαίνειν*) 1222, 24. The Arcadian also has *ἐν* several times, *e.g.* *ἐν* Ὀλυνπίαι Coll. 1183; *ἐν ἰράναι* 1235, 5, *et pass.*; but only before a vowel.

It is an ingenious theory of Spitzer (*Laut. Ark. Dial.*, p. 14) that *ἰν* developed in Arcadian from *ἐν* before initial consonants, and he adduces analogies for this change from other languages, Old German and Latin; *e.g.* Lat. *tingo* for **tengo* (*cf.* τέγγω), *quīnque* (*i.e.* **pinque*) for **penque* (*cf.* πέντε), though it must be confessed that such words as *ventus*, *offendimentum* (Idg. *bhendh-*) furnish puzzling exceptions.

The fact that *ἐν* has survived in Arcadian is sufficient evidence that *ἰν* developed in that dialect only under certain conditions (otherwise *ἐν* would have disappeared altogether), and Spitzer's theory that this was before consonants is highly

probable. According to him the old formula *ἐν πολέμοι καὶ ἐν ἰράναι* (Coll. 1233, 5) represents the proper use of *ἐν* and *ἰν* respectively in Arcadian. (*Cf.* the similar relation of *ἐς* and *εἰς* in Attic, the former of which was *originally* used before an initial consonant, the latter before an initial vowel.) At the same time, Arcadian *ἰν* has already begun to encroach upon the legitimate territory of *ἐν*; *e.g.* *ἰν ἁμέραις* Coll. 1222, 4; *ἰναγόντω* 1222, 19.

In Cyprian, *ἰ(ν)*, when used alone as a preposition, occurs only before initial consonants, never before a vowel, rejecting *ἰν* 'Αμύ(ν)τω, Coll. 41, in view of Deecke, *Bezz. Beitr.*, xi., p. 317. In composition we have probably one instance of *ἰν-* before a vowel, *viz.* *ἰναλαλισμένα* Coll. 60, 26. *ἰνιπά* Coll. 126, 3, is too doubtful to admit. Deecke now (*Bezz. Beitr.*, xi., p. 319) reads *ta·i·ne·ta·li·o·i·*, *i.e.* *τᾶ ἰν* 'Ηδαλίωι, in Coll. 62, in place of his previous reading *ta·i·|e·ta·li·o·i·*, *i.e.* *τᾶι* 'Ηδαλιοῖ (locative). This would give an instance of *ἰν* before a vowel. But the character which Deecke now wishes to take as *ne·*, while perhaps not a perfect *e·*, is certainly entirely different from the ordinary character for *ne·*, as seen not only in Idalian inscriptions, but others as well, and the mark after *ta·i·* as given in Schmidt (*Sammlung Kyprischer Inschriften in Epichorischer Schrift*, vii., 2) which Deecke wishes to join with the character in question bears every evidence of being a divisor. I can hardly believe therefore that Deecke is right in this new reading, whatever may be the difficulties of the old one.

The form *ἐν* has not as yet been brought to light in any Cyprian inscription, but, under the circumstances, this must not be regarded as conclusive evidence that it did not exist side by side with *ἰν* just as in Arcadian. The only place in which *ἐν* might fairly be expected to occur would be before an initial vowel (assuming Spitzer's theory to be correct), and but a single instance (itself not perfectly certain) of this sort can be cited (*viz.* *ἰναλαλισμένα* Coll. 60, 26), which of course so far as it goes contradicts Spitzer's theory when applied to the Cyprian.

Hall's latest reading of COLL. 76 (*Jour. Am. Or. Soc.*, xi., p. 223), which he has again examined in the Cesnola collection in New York since the appearance of Collitz's *Sammlung*, is *τὰν ϝεικόνα τά(ν)δε 'ν Ἀπό[λ(λ)ωνά]*, — *i.e.* 'to Apollo,' in which he takes *'ν* for *ἰν* with aphæresis of the *ἰ* (*cf.* *οἳ* (*'ν*) for *οἳ ἰ(ν)* COLL. 60, 31). His reading, if correct, would, in view of the preceding *τά(ν)δε*, indicate that *ε* had disappeared rather than *ι*, and might be taken as furnishing some slight evidence of the existence of *ἐν*; but in view of the incompleteness of the inscription and the possibilities of combination, Hall's reading cannot be considered safe enough to base conclusions upon. Yet it is quite possible that the form *ἰν* may have existed in Cyprian and may yet be brought to light. At all events, until instances of *ἰν* before vowels are discovered, we have no right to declare that *ἰν* had driven *ἐν* out of use in Cyprian; any more than we should be justified in claiming the same for the Arcadian dialect on the basis of Arcadian *ἰν ἀμέραις* COLL. 1222, 4, and *ἰναγόντω* 1222, 19, assuming that instances of *ἐν* before vowels in Arcadian had not yet been found. Arcadian *ἰν ἀμέραις* and *ἰναγόντω* when viewed in the light of *ἐν Ἀρκαδίαι* COLL. 1200, 3; *ἐν ἰράναι* 1233, 5; *ἐν Ὀλυνπίαι* 1183, 6; *ἐν ἀγῶσι* 1231, are seen to be encroachments of *ἰν* upon the domain of *ἐν*. Cyprian *ἰναλαλισμένα* is perhaps most safely explained in the same way.

Further light is thrown upon the question by the Cyprian forms *μέν* COLL. 71 (*μὲν ἔστασαν*) and *μί* COLL. 1, 1; 2, 2 (*μὶ κατέθηκε*). These forms *μέν* and *μί* are unquestionably for *μέ*, the acc. sing. of the first personal pronoun. On the origin of *μέν* from *μέ*, see § 31, 1. *μί* is certainly to be considered as *μί(ν)* (see § 31, 2), and as developed from *μέν* before a consonant, just as *ἰν* from *ἐν*. Only the initial vowel of *ἔστασαν* in COLL. 71 has preserved to us the form *μέν*. Can we doubt that, if we had preserved to us instances of the preposition (*ἐν, ἰν*) before initial vowels, it would appear as *ἐν*?

On Hall's reading of *μί(ν)* in COLL. 45, 1, before an initial vowel and Voigt's reading of *μίν* in 45, 4, also before an initial vowel, see § 23, 4; 9, 4.

3. On the ι of the κατέθισαν (= Att. κατέθεσαν) Coll. 20, 2, see below, under *Conjugation*, § 32, 5.

8.

ῑ.

Where it occurs, ῑ corresponds to primitive Greek ῑ and to ῑ of the other dialects; *e.g.* Δαμονίκω Coll. 151; 179; Ἐχετίμων 38, 2; Θεοτίμων 42; ἶνις *Bezz. Beitr.*, xi., p. 316; πῖθι Coll. 135.

1. ἱρῶνι Coll. 60, 8; 31, if correct and to be connected with ἱερός in the sense of 'consecrated district,' probably had ῑ, which must be explained in the same way as the perplexing Homeric ἱρός, Lesbian ἶρος. Osthoff (*Morphologische Untersuchungen*, iv., p. 151) assumes *ἰσ-ρός for the original form, as otherwise it is impossible to account for the ῑ in Lesbian; a primitive *ἰσρός would have given *ἴρρος in that dialect.

Ahrens (*Philologus*, xxxv., p. 42) reads the ι with the preceding τῶ, *i.e.* τῶι ῥωνί, or according to his principles τοῖ ῥωνί (τοῖ locative; see below, § 27, 3) '*in the plain.*'

2. φῑδωλός is Deecke's reading in Coll. 126, 3 for φειδωλός. But the change of primitive ει to ῑ in Cyprian is altogether improbable, since ει whether original or of secondary origin is elsewhere retained; *e.g.* πείσει Coll. 60, 12, 25; ῥέτει 59, 1; 60, 1; ἔτει 76, 1; αἰρεί 60, 31; Ἀπείλων *Berl. Phil. Woch.*, 1886, No. 42, col. 1323. Moreover, one or two of the characters of which the word consists are quite uncertain.

9.

ῡ.

Cyprian ῡ corresponds in general to primitive Greek ῡ and to ῡ of the other dialects; *e.g.* ἐπέτυχε Coll. 59, 4; κᾶρυξ 65, 1; σύν 60, 28; ἀργύρω 60, 6, *et pass.*

1. δυϝάνοι (for δυ-άν-οι, with parasitic ϝ, see § 17, 2) Coll. 60, 6 seems to be from the root δυ- 'give,' seen in Lat. *du-im,*

du-int, and not to be confounded with δω-, δο-. *Cf.* Deecke-Siegismund in Curtius' *Studien*, vii., p. 248.

2. Final ο in Cyprian when preceded by a consonant invariably changed to ν. The instances are *ἀπύ* Coll. 60, 8, 17; *γένοιτυ* 60, 29; *ἐϝρητάσατυ* 60, 14; *εὐϝρητάσατυ* 60, 4; *ὡρίσετυ* 126, 1. So in Arcadian; *e.g. ἀπύ* Coll. 1222, 4; *ἄλλυ* 1222, 40. The Thessalian and Lesbian also have *ἀπύ*, and the Pamphylian shows the change of ο to ν not only in case of final ο, but also elsewhere; *e.g. ἐβωλάσετυ* Coll. 1267, 8; *ϝοικύπολις* 1267, 14; *βωλήμενυς* 1267, 13.

Arcadian *κατύ* (for *κατά*) Coll. 1222, 11, 29, has not yet been found in Cyprian. Nor does *κατά* itself occur.

3. So also in -ᾱο the ending of the gen. sing. of masculine -ᾱ- stems, ο usually changes to ν, preparatory to undergoing contraction to -αν, *e.g.* Θεμίαυ Coll. 66; Μαράκαυ 29; but we find ᾱο- in Κυπραγόρᾱο Coll. 79 and Δαϳατίσᾱο 58. On these see below, § 14, 4.

4. *ὐνέθηκε* is read by Deecke, Coll. 45, 3, as a local variation of *ὀνέθηκε*, *i.e. ἀνέθηκε*; see above, § 5, 1. The only difficulty with this reading is that the character for *u* · (𐊘) has a superfluous horizontal line drawn over its top. This has led Voigt (*Quaestiones de Titulis Cypriis*, p. 282, and later in *Bezz. Beitr.*, ix., p. 166) to conjecture an error of the stone-cutter, whereby the horizontal line was made over, instead of under, the rest of the character. With that change we should get the regular syllabic sign for *mi* ·. This combined with the other characters gives *μὶν ἔθηκε*, in which Voigt takes *μίν* as the equivalent of *μέ*. But 1) it seems more natural to regard the horizontal line above the *u* · as an accidental scratch than as a mistake of the engraver.

2) *μιν* for *μεν*, *i.e. με*, before an initial vowel, is not admissible (see above, § 7, 2, *ad fin.*).

3) *ἔθηκε* is not the proper word for a dedicatory inscription, as this evidently is. The regular word is *ὀνέθηκε* or *ἀνέθηκε*, which occurs frequently (see above, § 5, 1).

4) Voigt's objection to the form of the word (*ὐν-* for *ὀν-*) is not well founded, and is the result of a false conception of

the relation of *ὀν-* and *ἀν-*. Voigt takes *ὀν-* as derived from *ἀν-* by some phonetic process, and refuses to believe that *ἀν-* after becoming *ὀν-* could still further progress to *ὐν-*. *ὀν-*, however, must be taken as an independent form (see above, § 5, 1), and that it should become *ὐν-*, in a dialect where the relations of ο and υ are confessedly very close, is not to be regarded as surprising.

That these relations were close is made evident not only by the regular change of final -ο to -ν, as noted above, but also by Ἀμό(ν)τα Coll. 147, for Ἀμύ(ν)τα (if correct; see § 5, 3), and *ὐνέθηκε* for *ὀνέθηκε*. *Cf.* the same phenomenon in Bœotian Ἀμόντας (for Ἀμύντας) Coll. 603; Νιυμείνιος (for Νιομείνιος) Coll. 485, 24. It is noteworthy that in Bœotian too the phenomenon seems to occur chiefly before nasals.

5. Spitzer (*Laut. Ark. Dial.*, p. 17, note) cites Cyprian *δυϝάνοι* Coll. 60, 6 as illustrating the change of ο to υ in the interior of a word. But *δοϝέναι* in the same inscription, lines 5, 15, certainly does not speak for this change, nor do other words in the dialect; so that the reference of the word to root δυ-, as above (1), is undoubtedly correct.

10.

ῡ.

We find ῡ in λύ̄ση (*i.e.* λύσῃ) Coll. 60, 29; λῦσαι 60, 28; *σῡλήση* (*i.e.* *σῡλήσῃ*) 126, 2, where it corresponds to ῡ of the other dialects, and presents no peculiarities.

Diphthongs.

11.

αι.

1. Primitive Greek αι appears in *αἰϝεί* Coll. 60, 31; *δοϝέναι* (Att. δοῦναι, for δο(ϝ)έναι) 60, 5, 15; *ἰ̔ᾶσθαι* 60, 3.

2. *ὕϝαις*, the accepted reading in Coll. 60, 10, is taken by Ahrens (*Philologus*, xxxv., p. 54) as from the preposition *ὑ* (= *ἐπί*; see below, § 33, 5) with the adverbial ending -αις

appended. On the parasitic ϝ see § 17, 2. This ending -αις, which appears nowhere else in Greek, Ahrens identifies with the Skrt. termination *-āis* as seen in *uccāís*, *çánāis*. But these are instrumentals from *-o-* stems (see Whitney, *Indische Grammatik*, § 1112), and are formally identical with the so-called dat. plu. of -ο- stems in -οις (for *-ωις, Idg. *-ōis*; as *Ζεύς* for *Ζηύς*; *ναῦς* for *νᾱ̃ύς*, *etc.*; Meyer, *Gr. Gr.*,[2] § 298). On a more probable explanation of *ὕϝαις*, see below, § 33, 5.

3. Interesting is *αἴλων*, Coll. 60, 14, = Att. *ἄλλων*. This is by epenthesis for a primitive **ἄλ̣ος* (Lat. *alius*), whence **αἴλ̣ος*, *αἶλος*. *Cf.* the Hesychian gloss *αἰλότροπον · ἀλλοιότροπον* and the recently discovered Cyprian form *Ἀπείλων* (for **Ἀπέλ̣ων*) in the inscription communicated by Deecke in the *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

4. ᾰι has also been assumed by Spitzer (*Laut. Ark. Dial.*, p. 26) in preference to -ᾱι (*i.e.* -ᾳ̣) as the ending of such singular forms as *μάχαι*, *τύχαι*, *Γολγίαι*, *etc.* Spitzer first (*ibid.*, p. 25) attempts to demonstrate for the Arcadian that the forms in -αι in that dialect have the α short and not long (-ᾰι not -ᾱι). He is convinced that -ᾱι could not have remained unchanged in Arcadian, but would have lost the iota and so have appeared as -ᾱ. His grounds for this are that final -ηι (*i.e.* -ῃ) loses its iota in Arcadian and appears as -η; *e.g.* *τυγχάνη*, Coll. 1222, 14, for *τυγχάνῃ*. He also adduces Arcadian *Ἀγεμώ*, which he takes as for *Ἀγεμώι*, Coll. 1185. But this last is by no means certain.

Spitzer's reasoning, however, is not conclusive, since final ᾱι, ηι, ωι do not necessarily all develop in the same way; and in fact even in one and the same dialect one and the same diphthong sometimes retains the ι and sometimes drops it; *e.g.* Ionic *τῇ βουλῇ* (for *τῇ βουλῇ*) Erythrae, 394 B.C.; *δημοσίη*, Mylasa, 355 B.C.; but *τῇ φυγῇ*, Samos, 322 B.C., Cauer, *Delectus*,[2] 510, 6. Hence it is quite possible that the Arcadian might have retained final -ᾱι, and that such forms as *Τεγέαι* Coll. 1222, 34; *Ἀρκαδίαι* 1200, 3; *Ὀλυνπίαι* 1183, 6; *ζαμίαι* 1222, 18, should be considered as ending in -ᾱι, so far as any phonetic necessity is concerned. The only reason

for not taking them as ending in -ᾱι is found in the corresponding forms from -ο- stems; *e.g.* ἔργοι Coll. 1222, 49; ἡμίσσοι 1222, 25. These latter must necessarily be regarded as locatives (to explain them as datives, with -οι shortened from -ωι is against all principles of Greek phonology), and so after the same analogy the forms from -ᾰ- stems are most naturally taken as locative, and as ending in -ᾰι. A confirmation of this view is found in the similar Bœotian forms from -ο- and -ᾱ- stems; *e.g.* δάμυ (*i.e.* δάμοι) Coll. 380, 3; ταμίη (*i.e.* ταμίᾰι) Coll. 385, 5.

The above considerations, therefore, are not intended to show the incorrectness of Spitzer's conclusion in regard to the Arcadian forms in -ᾰι, but simply the unsafeness of his method in reaching that conclusion. The same theory (*viz.* that -ᾱι cannot stand in Arcadian) applied to the closely related Cyprian dialect, as Spitzer (*ibid.*, p. 26) does apply it, leads to a false conclusion. Let us first look at the facts. We find in Cyprian the following dative forms: —

1) forms in -αι (whether -ᾱι or -αι is to be determined).

τύχαι ἀζαθᾶι Coll. 37, 3; 59, 4; Ἀλα(μ)πριᾶται 60, 8; ἀρούραι 60, 20; Ἀφροδίται 1, 3; Γολγίαι 61; ζᾶι 60, 8, 17, 24; Μαλανίᾶι 60, 17; μάχαι 60, 3; Παφίαι 1, 3; πεδίᾶι 60, 18; Περσεύται 45, 3; τᾶι 1, 2; 40, 2; 60, 3, 6, 8 (twice), 17 (twice), 18, 24; 61 (twice); 62, 1; τύχαι 17, 2; 27, 2; 28; 31, 4; 33, 2; 37, 3; 72, 2; *Berl. Phil. Woch.*, 1886, No. 42, col. 1323; 1887, No. 12, col. 380; Ϝλάται Coll. 27, 1; 28; 31, 4; 32, 2; Ἀθάναι 17, 2; Ἀλασιώται *Berl. Phil. Woch.*, 1887, No. 12, col. 380; Ἀρισταγόραι *ibid.*, 1887, No. 52, col. 1644; δοϳᾶι, Deecke's earlier reading in Coll. 41, is now no longer maintained by him. (See *Bezz. Beitr.*, xi., p. 317.)

2) forms in -ᾰ.

Ἀθάνα Coll. 62; τύχα 74, 3; 120, 4; τᾶ 17, 2; 60, 8, 17; 62, 1; τᾶ Παφία, the correct reading of Coll. 9, according to Hall (*Jour. Am. Or. Soc.*, xi., p. 212). εὐχωλᾶ 27, 2 is best taken as nominative; Ἐτεοδάμα Coll. 135, which Deecke (*ad loc.*) says may be taken as either dat. or gen. (with omitted -ς; see § 20, 1) is best taken as vocative; ὁσέϳα,

Deecke's earlier reading in COLL. 41 is no longer maintained by him; see *Bezz. Beitr.*, xi., p. 317.

Spitzer's conclusion with regard to the above forms (whether he had them all before him is doubtful) is this. Those in -αι, while used as datives, he considers may be morphologically either locative or dative formations. Both these formations, he holds, were in case of -ᾱ- stems originally the same, the locative -ᾱι arising from primitive ᾱ+ι, the dative -ᾶι from ᾱ+αι. Either of these, according to Spitzer, must develop to -ᾱ in Arcadian or Cyprian. The forms in -αι on the other hand he takes as locatives and as ending in -ᾰι. This -ᾰι he regards not as a primitive locative formation, but as developed secondarily from the primitive locative termination -ᾱι (for ᾱ+ι), after the analogy of the locatives in -οι from -ο- stems (*e.g.* *οἴκοι*). This may be expressed by the proportion:

$$οἴκῳ : οἴκοι :: τύχᾳ : τύχᾰι.$$

Against Spitzer's theory must be urged

1) There is no evidence that the -ᾱ- stems ever formed a locative in ᾱ+ι, which might give -ᾱι. (*Cf.* Meyer, *Gr. Gr.*,[2] § 351.) Hence the locatives in -ᾰι from -ᾱ- stems are not the successors of an earlier locative formation in -ᾱι, but are best explained as entirely new formations. This being the case, the Cyprian forms in -ᾱ- could originate only from a dative -ᾱι, not from a locative -ᾱι. They are therefore datives.

2) If we view the forms in -αι as locatives (*i.e.* as ending in ᾰι), we shall have the anomaly of the locative taking on the function of the dative, and being used in precisely the same phrases and formulas, along with the continued use of the dative itself. The improbability of this fact is sufficiently great. Wherever one inflectional form takes on the function of another, it is to the exclusion of the latter, at least in the same function. Thus Arcadian *ἔργοι*, locative used as dative, has supplanted *ἔργῳ*; *ζαμίᾰι* similarly has supplanted *ζαμίᾳι*. So also Attic *τείχη*, dual (borrowed from plu.), has taken its

place in the dual to the exclusion of the regular formation τείχει (for τείχεε); *cf.* Att ζεύγει CIA. II., 652, B, 26 (Meisterhans, *Grammatik der Attischen Inscriften*,[1] p. 61). But according to Spitzer's view, in such an inscription as τᾶ Ἀθάναι COLL. 17, 2 we should have a dative article τᾶ limiting a locative noun. (*Cf.* also 60, 8, 17 ἀπὺ τᾶι ζᾶι τᾶι βασιλῆϝος τᾶ ἰ(ν) τῶ ἰρῶνι, where similarly τᾶ, dative, would stand in apposition with a locative τᾶι ζᾶι.)

3) The adverb παι (*cf.* Doric πᾳ, Attic πῃ) COLL. 60, 4, 12; 71, can only be for πᾱι, and shows clearly that final -ᾱι in Cyprian did not necessarily lose its ι, and that other forms with -ᾱι may therefore exist in Cyprian.

The forms in -αι are therefore to be considered as datives, hence as ending in -ᾱι, while those in -ᾱ are also datives, with the -ᾱ developed from -ᾱι, as frequent in many dialects. Ahrens assumes a locative in -ᾱι, and a dative in -ᾱ and -ᾱι. See below under *Inflections*, § 25, 5.

5. Δι̯αίθεμι(ς) COLL. 74, 1 (*cf.* Διρείθεμις 60, 21) is obscure in its form and probably incorrect, as the inscription seems to be carelessly written.

12.

ει.

Cyprian ει corresponds regularly to primitive Greek ει and to ει of the other dialects in αἰρεί COLL. 60, 31; ϝεικόνα 76, 2; πείσει (Att.[1] τείσει) 60, 12, 25.

1. ει by epenthesis appears in the form Ἀπείλων in the bilingual inscription communicated by Deecke in the *Berl. Phil. Woch.*, 1886, No. 42, col. 1323. The original formation *Ἀπέλι̯ων, became first *Ἀπείλι̯ων and thence Ἀπείλων. *Cf.* Pamphylian Ἀπέλ(λ)ωνα (for *Ἀπέλι̯ωνα) COLL. 1267, 30; Syracusan Ἀπέλ(λ)ωνι Roehl, *Inscriptiones Graecae Antiquissimae*, 509, and the Arcadian proper name Ἀπελλίων COLL. 1190, all of which represent the same form of the

[1] Often incorrectly written τίσω; but τει- is the regular form of the root for the future and is assured by Attic inscriptions of the best period. See Meisterhans, *Grammatik der Attischen Inschriften*,[1] p. 24, 88.

root syllable, *viz.* πελ-. The ordinary Cyprian form Ἀπόλ-(λ)ων represents the ablaut of the same root, while Thessalian Ἄπλουν (ου = ω), seen in Ἄπλουνι COLL. 368; 372; Ἀπλουνος 345, 22, represents the weak form. *Cf.* the similar "*Abstufung*" in the name Ποσειδών, Laconian Ποοίδᾶνι (*i.e.* Ποσοιδᾶνι) Roehl, *Inscriptiones Graecae Antiquissimae*, 83; Corinthian Ποτιδάν *ibid.*, 20.

2. The ει of the form ἐρείσης COLL. 68, 2 cannot be justified. Deecke (*Bezz. Beitr.*, vi., p. 79) takes this as the equivalent of the Homeric ἐίση (*cf.* νέες ἑῖσαι, *i.e.* *ἐ-ϝῖσαι). But assuming this to be correct the change of ῑ to ει or the opposite (see on φῑδωλός, § 8, 2) remains to be proved for the Cyprian dialect. All the existing evidence shows that no such change took place. Moreover, the primitive form of the Homeric word was ϝίσϝος, as shown by the recently discovered Gortynian inscription. ϝισϝόμοιρον X., 53; ϝίσϝον Frag. B, 2. Hence the probable reading of the Homeric text is ἐ-ίσσαι (for *ἐ-ϝίσσαι; the ε prothetic). It is clear that a form ἐ-ϝισϝ- could not give Cyprian ἐ-ϝεισ-. The Ionic η too, of the termination, discredits the word, and the phrase, ποτ' (for ποτί, *i.e.* πρός) ἐρείσης is not elsewhere found. On the general uncertainty of the context, see p. 2.

3. The ει in the first member of Διρείθεμις COLL. 60, 21, where some claim an old dative, is difficult of explanation. Attic Διειτρέφης CIA. I., 447, III., 53, *et pass.* is probably kindred.

4. On ει arising by contraction, see § 14, 9.

13.

ευ, οι; ᾱι, ηι, ωι; αυ.

1. In one or two instances ευ has developed from ε before ϝ, *viz.* in εὐϝρητάσατυ (for ἐϝρητάσατυ) COLL. 60, 3, and κενευϝόν (for κενεϝόν; *cf.* Homeric κενεός) 20, 2. This points clearly to ϝ as a bilabial and not a labio-dental spirant in Cyprian, as does also the development of ϝ between ευ and a following vowel (see below, § 17, 2); though that it points to

that pronunciation of ϝ for all Greek dialects, as Meyer (*Gr. Gr.*,[2] § 230) seems to conclude, cannot be admitted. There may have been a labio-dental as well as a bilabial ϝ in Greek, just as in Germany in case of *w*.

The ν which was doubtless heard in the spoken language between every ε and a succeeding ϝ is not expressed in inscriptions except in the instances above cited. Elsewhere we find ἐϝρητάσατυ COLL. 60, 14; ἔϝρεξα 71; Ἐτεϝά(ν)δρω 46; 47; κατεϝόρκων 60, 1; νεϝοστάτας 59, 2; Νικοκλέϝης 40, 1.

The same development of ο to ου before ϝ probably existed, but existing inscriptions show no evidence of any attempt to indicate this refinement of pronunciation. *Cf.* δοϝέναι COLL. 60, 5, 15; Ἀριστοκόϝων (questioned by Hall, *Four. Am. Or. Soc.*, xi., p. 216) 45, 1.

2. οι has also been assumed by Spitzer (*Laut. Ark. Dial.*, p. 24, Note) as the termination of those forms from -ο- stems which Deecke transcribes as -ωι (*i.e.* -ῳ, dative). Spitzer takes these as locatives, holding that -ωι could not remain unchanged in either Arcadian or Cyprian, but must always become -ω. That -ωι did frequently lose its ι in Cyprian is beyond question. This is shown clearly by the frequent dative forms in -ω (for the instances see below, 3, c). But it is not true that -ωι always lost its ι any more than did -ᾱι (see above, § 11, 4); -ᾱι and -ωι seem both of them to be passing through a sort of transition period in the dialect of our Cyprian inscriptions.

Moreover if, with Spitzer, we transcribe Cyprian *-o·i·* by -οι (*i.e.* locative), we shall be forced to admit a serious inconsistency in such phrases as τοῖ θεῶ COLL. 74, 1 and τοῖ θεοῖ τῶ Ϝλάται 27, 1, where we should have a dative article limiting a locative noun. There is therefore not only no phonetic necessity for admitting -οι instead of -ωι, but to do so would lead to an absurdity. The view of Ahrens, who claims a locative in -οι and also a dative in -ωι and -ω, involves no phonetic considerations and will be considered below under *Inflections*, § 26, 3.

3. The diphthongs -ᾱι, -ηι, -ωι (*i.e.* -ᾳ, -ῃ, -ῳ) often lose their ι and appear as -ᾱ, -η, -ω.

a) The examples of -ᾱ for -ᾱι have already been given above (see § 11, 4, 2). So far as can be seen they reveal no law. Yet as we find forms in -ᾱ and -ᾱι side by side in the same inscription, it is natural to assume a phonetic origin for the shorter forms. These may have originated before initial vowels, while -ᾱι was retained before consonants, though the evidence is not sufficient to make this at all certain.

b) Final η stands regularly in the 3d sing. of the subjunctive for -ηι, *viz.* in λύση Coll. 60, 29; συλήση 126, 2; ἐξ ὀρύξη 60, 12, 24, 25. *Cf.* Arcadian τυγχάνη Coll. 1222, 14; ἔχη 1222, 26; Cretan καταλύη Cauer, *Delectus*,[2] 44, 69. Deecke's Ἄδη Coll. 126, 2, which he takes for Ἄιδηι, is not certain (see § 4, 1). Final ηι is nowhere retained in Cyprian, so that Deecke's suggestion of Ϝῆι as the reading of Coll. 124, is un-Cyprian, apart from the general uncertainty as to the genuineness of the inscription; see p. 3.

It is noteworthy that while we have frequent instances of -ᾱι and -ωι in Cyprian, -ηι nowhere occurs, but always -η instead. The Cyprian accordingly exhibits the same tendency as other dialects, in which -ηι is the first of the improper diphthongs to lose its ι. *Cf.* in the Therean inscription (Cauer, *Delectus*,[2] 148), πάθη II., 28; ᾗ vi., 20; εἶπη viii., 9; but τῶι κοινῶι ii., 9; Ἀνδραγόραι iii., 2. This is physiologically natural, as the ι being more closely related in sound to η than to ω and ᾱ, would more easily be absorbed by a preceding η than by either of the other two vowels. (*Cf.* Brugmann, *Grundriss der Vergleichenden Grammatik*, I., p. 121.)

c) -ωι (*i.e.* -ῳ) loses the ι and appears as -ω in the following instances: τῶι θεῶ τῶ Ἀπόλλωνι Coll. 74, 1; τῶι θεῶι τῶ Ϝλάται 27, 1; τῶ Ϝλάται 28; Ἀπόλ(λ)ωνι τῶ Ϝλάται 31, 4; τ'Ωσίρι (*i.e.* τῶ Ὀσίρι) 45, 1; τῶ Ἀπόλ(λ)ωνι τῶ Ἀμύκλωι 59, 3; τῶ ἱρῶνι τῶι Ἀλα(μ)πριάται 60, 8; τῶ ἱρῶνι τῶι Ἡδαλιῆϊ 60, 31; τῶ Ὀσίρι 72, 1; τῶι θεῶι τῶ Ἀπόλ(λ)ωνι 72, 2; τῶι θι[ῶι] τῶ Ἀπόλ(λ)ωνι 75, 3; τῶ Ἀπόλ(λ)ωνι τῶ Μαγιρίω 120, 2, 3; τῶ θιῶι *Berl. Phil. Woch.*, 1886, No. 42, col. 1323;

'Αρισταγόραι τῶ 'Ονασιϝοίκω *Berl. Phil. Woch.*, 1887, No. 52, 1644. "Α(ι)δη(ι) μισαάτω COLL. 126, 2 and τῶ ἀ(ν)θρώπω 126, 3 are very doubtful.

An examination of the above instances almost tempts to the conclusion that -ω originated from -ωι before vowels. Rejecting the last two forms as uncertain, all the others accord with this inference, except τῶ θιῶι *Berl. Phil. Woch.*, 1886, No. 42, col. 1323; τῶ Μαγιρίω COLL. 120, 3; θεῶ τῶ 74, 1. But forms in -ωι also occur quite numerously before vowels; *e.g.* τῶι 'Αλλα(μ)πριήαται COLL. 60, 8; τῶι ἔλει 60, 9; τῶ̃ι 'Ηδαλιῆι 60, 31; τῶι 'Απείλωνι *Berl. Phil. Woch.*, 1886, No. 42, col. 1323, so that the existence of the law suggested cannot be established. The absence of such a law in the occurrence of -ᾱ and -ᾱι (see a, above) is also opposed to its existence here.

4. On αυ by contraction from -ᾱο, see § 14, 4.

14.

Contraction of Vowels.

1. ᾰ+ε gives ᾱ in ἰήᾶσθαι (for ἰήάεσθαι) COLL. 60, 3 and by crasis in τἀπί (for τὰ ἐπί) 37, 2.

2. ᾰ+ο. Αὐλάονος COLL. 63; δίμαον 69; Δαόφα 83 are all too uncertain to be considered here.

3. ᾰ+ω. 'Αβροθάωι COLL. 129, 130; 'Ανάω 97; τιμῶ 69 are all uncertain.

4. ᾱ+ο. Final -ᾱο in the gen. sing. of masc. -ᾱ- stems (*cf.* Homeric 'Ατρείδᾱο) contracts to -αυ as in Arcadian (*cf.* Arc. 'Απολλωνίδαυ COLL. 1231, B, 16), *viz.* in 'Αρισταγόραυ COLL. 28; 'Αριστίήαυ 20, 1; Θεμίαυ 66; Μαράκαυ 29; Νασιώταυ 21, 2; 'Ονασαγόραυ 60, 1, 22; Στασίήαυ 17, 1; Τιμαγόραυ *Berl. Phil. Woch.*, 1886, No. 41, viii.; 'Ονασαγόραυ *ibid.*, x.; Στασαγόραυ iv.; Πυνταγόραυ *Berl. Phil. Woch.*, 1886, No. 51, xv.; Τιμαγόραυ *ibid.*, xvii.

Κυπραγόρᾱο COLL. 79 and Δαϳατίσᾱο 58, however, remain uncontracted. Deecke on the latter regards the termination -αο as also diphthongal, which is perhaps correct. *Cf.* Ionic αὐτοῖς, ταῦτα, αὐτόν (for αὐτοῖς, *etc.*) Cauer, *Delectus*,[2] 510.

'Αμηνίϳᾱ, Coll. 60, 18, gen. sing. from 'Αμηνίϳας, 'Αριστίϳᾱ *Berl. Phil. Woch.*, 1886, No. 52, xx., and Εὐϝαγόρω, 153, 154, gen. sing. of Εὐϝαγόρας (*cf.* 'Ονασαγόραυ above), are difficult of explanation and due perhaps to foreign influence. See below, under *Inflections*, § 25, 3.

5. ᾱ + ω contracts to ᾱ in the gen. pl. of -ᾱ- stems. The only example preserved is ἐπαγομενᾶν Coll. 59, 2. *Cf.* Arcadian ἐργωνᾶν Coll. 1222, 47.

6. ε + ᾰ does not contract in Cyprian, but in the Idalian Bronze Tablet (Coll. 60) ε becomes ι according to § 7, 1, always with the parasitic ϳ (see § 18, 1), *viz.* in τέρχνιϳα, Coll. 60, 9, 18, 22; ϝέπιϳα 60, 26; ἀτελίϳα 60, 23; κατέθιϳαν 60, 27. ἀτελῆν, acc. sing. from ἀτελής, Deecke's reading in Coll. 60, 10, is no exception to the above principle. This is not to be taken as a contracted form for ἀτελέα (*cf.* ἀτελίϳα 60, 23), *i.e.* ἀτελῆ, with added -ν, as in case of ἀ(ν)δριϳά(ν)τα-ν Coll. 59, 2 (see § 29, 1), but is rather the same formation as is seen in Lesbian δαμοτέλην (from δαμοτέλης) Coll. 304, A, 44 (see under *Inflections*, § 29, 8). Hence the form is to be written ἀτελήν.

Instead of Deecke's ἤ κε (= εἴ κε) Coll. 60, 10, 23, Meyer (*Gr. Gr.*,[2] § 113, foot-note) suggests ἤ(ν) κε. (On (ν) see § 23, 2.) This ἤ(ν) he takes as the Cyprian contract form of ἐάν. We should thus have the same combination of κε and ἄν as in Homer; *e.g.* ὄφρ' ἂν μέν κεν Λ 187. But it is inadmissible to assume contraction of εα to η and is moreover unnecessary. Meyer's unwillingness to accept ἤ as an independent particle (related to but not identical with εἰ) is not well founded in view of the occurrence of ἤ in this sense in the Cretan inscription from Gortyna, *e.g.* iv., 31; v., 9.

Outside of the Bronze Tablet εᾰ remains unchanged, *viz.* in Θεάνωρ Coll. 126, 1; Νεα- 76.

7. ε + ε gives η in ἦχε (for *ἔεχε, *i.e.* *ἐ-σεχ-ε), Att. εἶχε, Coll. 60, 21. Whether the same contraction takes place in the infinitive of -ω- verbs is uncertain. Deecke in Coll. 60, 10, 22 writes ἔχην, *i.e.* for *ἔχε-εν, Att. ἔχειν. See below, under *Conjugation*, § 32, 11.

εὐζαϝεῖτε Coll. 56 which Deecke reads as contracted form for εὐζαϝέετε (*Bezz. Beitr.*, vi., p. 148) cannot be regarded as a Cyprian form.

In the group -εεο- εε does not contract, but the group is simplified by aphæresis of the first ε. Instances of this are Θεοκλέος for Θεοκλέεος (*i.e.* Θεοκλέϝεος) Coll. 126, 1; Τιμοκλέος 35 (*cf.* Arcadian Ξενοκλέος for Ξενοκλέεος, Coll. 1246, B, 12; Χαρικλέος 1246, B, 4); σπέος, gen. sing. for *σπέεος (*i.e.* *σπέ-εσ-ος) 31, 2; 32, 2. Deecke reads σπέως here, assuming contraction of εο to ω, but εο does not elsewhere contract to ω in Cyprian (*cf.* Θεοκλέος, Τιμοκλέος; Στασικράτεος Coll. 18, 2, *etc.*), nor in the closely related Arcadian (see above). Hence the Cyprian form must be σπέος, even though the genitive thereby becomes identical with the nominative.

The Cyprian accordingly bears out the general principle assumed by Spitzer (*Laut. Ark. Dial.*, p. 37), *viz.* that when of three successive vowels the last two are incapable of contraction, in the particular dialect where they occur, the first of the three disappears.

In the same connection Spitzer formulates another general principle intended to apply to all Greek dialects. It is this: When of three successive vowels the two latter are capable of contraction, they contract and no further contraction with the first vowel takes place. This principle I believe to be unsafe and to be contradicted by an undoubted illustration taken from the Arcadian itself, *viz.* δαμιοργός. This is generally incorrectly referred to a form δαμιοεργός. But the second member of the compound as a *nomen agentis* demands the ablaut of the root, -ϝοργ-; *cf.* κλοπ-ός 'thief'; σκοπ-ός 'spy'; πομπ-ός 'attendant' *etc.* See Meyer *Gr. Gr.*², § 9. The Homeric poems, it is true, exhibit δημιοεργός τ 383 *et pass.*; but this is to be regarded as of secondary origin by the side of *δαμιο-οργός. *Cf.* the similar relation existing between Att. πεντηκόντ-oρος 'fifty-oared galley' and Ionic πεντηκόντ-ερος, — root ἐρ- 'row'. So Attic inscriptions have τριακόντ-ερος by the side of the earlier τριακόντ-oρος. See

Meisterhans, *Grammatik der Attischen Inschriften*[1], p. 10; *cf.* Meyer *Gr. Gr.*,[2] *l.c.*

No dialect has preserved any instance in inscriptions of the original formation. –ΟΡΓΟΣ in inscriptions written in the old alphabet, *e.g.* Coll. 1170, 2 (Elean); 1479, 15 (Locrian), if not actually for *-οργός* (as read by Bechtel in case of the latter inscription), may be taken as easily for the contraction of *-οοργός* as of *-οεργός*. So also Attic *δημιουργός* points no more clearly to *-οεργός* than *-οοργός*. The Messenian dialect has *δαμιοργός* Cauer *Delectus*,[2] 47, 119; so also the Achæan, cig. 1542; Megarian, Coll. 3094, 19; Pamphylian, 1261, 3.

In all these cases *δαμιοργός* is to be derived from the primitive form **δαμιο-οργός* by aphæresis of the first ο. In other words, we have the same law here as in the Cyprian forms *Θεοκλέος*, *Τιμοκλέος* mentioned above. The facts I believe authorize us to assume at least for the Arcadian and Cyprian the following law: When of three successive vowels the first and second or the second and third are repetitions of the same sound, one of the repeated vowels disappears. This law also shows evidences of its operation even to a wider extent than these two dialects; *e.g.* Cretan *Πριανσιές* for *-ιέες* cig. 2556, 30; Ionic *βορέω* for *βορέεω*; so also the infinitives of contract verbs in *-άω*, *-έω*, *-όω*, **τιμάεν* (whence *τιμᾶν*) for **τιμάεεν*; **φιλέεν* (whence *φιλεῖν*) for **φιλέεεν*; *μισθόεν* (whence *μισθοῦν*) for **μισθόεεν*.

The above explanation of *δαμιοργός* not only starts from the form demanded by the signification of the compound but explains its further development by a principle simple and natural and abundantly illustrated in Arcadian, Cyprian, and elsewhere. Spitzer's explanation (after Ahrens, *De Graecae Linguae Dialectis*, I., p. 234) refers the word to a primitive *δαμιο-εργός*, whence *δαμιωργός* by contraction; thence, by shortening of the ω, *δαμιοργός*. This shortening of a long vowel when followed by a liquid + consonant, though maintained by Brugmann (*Grundriss der Vergleichenden Grammatik*, I., p. 463), does not seem as certain, by any means, as

the other instances of vowel-shortening adduced by Brugmann in the same connection, and is to be regarded as doubtful. Even if admitted for *στόρνυμι* (from **στώρ-νυ-μι*) and *βόλλομαι*, *i.e.* **βόλνομαι* (from **βώλ-νομαι*), it is by no means certain that it operated subsequently to the disappearance of *ϝ*, as must be assumed for *δαμιο-(ϝ)εργός*.

Thessalian λειτοργοῦντος (*i.e.* *-ῶντος*) *Mittheilungen des Deutschen Archäologischen Instituts*, vii., 346, which is explained by Prellwitz (*De dialecto Thessalica*, p. 43) by the shortening of ω (for οε) to ο, is not certain and probably incorrect. Lolling, in publishing the inscription, says: "Da der stein hoch eingemauert, musste ich auf sicherstellung der zweifelhaft und undeutlich bleibenden stellen verzichten"; so that confirmation of the form is needed. If correct, λειτοργοῦντος might be referred to the influence of *δαμιοργοῦντος*.

8. ε+η remains unchanged in Θεητονίκω Coll. 128.

9. ε+ι may be contracted in *ϝέτει* Coll. 60, 1; 59, 1; ἔλει 60, 9; ἔτει 76, 1, though the character of the Cyprian syllabary makes it impossible to determine whether the vowels were contracted or spoken separately.

10. ε+ο in the Bronze Tablet becomes ιο in accordance with § 7, 1; *viz.* in *ἐπιό(ν)τα* (for *ἐπεό(ν)τα*) Coll. 60, 9, 19, 22; *ἰό(ν)τα* 60, 23.

Elsewhere εο remains unchanged, *viz.* in Θεοκλέος Coll. 126, 1; Ἐτεοδάμα 135; Θεοτίμων 42; Τιμοκλέϝεος 36; 64; Τιμοκλέος 35; Στασικράτεος 18, 2; Στασικρέτεος *Studia Nicolaitana*, p. 68; Τιμοκρέτεος *Berl. Phil. Woch.*, 1886, No. 41, ii.; viii.; Φιλοκρέτεος *ibid.*, vii.

One exception is found in a late inscription, *Berl. Phil. Woch.*, 1886, No. 42, col. 1323, where Νεομήνιος becomes Νωμήνιος. The same inscription is characterized by the *ν*-movable, an evidence of the late period to which it belongs.

11. ε+ω changes to ιω (in accordance with § 7, 1) in *ἴωσι*, (for *ἔωσι*, subjunctive) Coll. 60, 31. On Deecke's *φρονέωἰ* (*i.e.* *φρονέωσι*) 68, 4, see below, § 20, 2.

12. ι+ι in the Bronze Tablet does not contract, but becomes ιϳι (in accordance with § 18, 1, c), *viz.* in πτόλιϳι Coll. 60, 6. Διὶ *Berl. Phil. Woch.*, 1886, No. 41, ix. remains uncontracted after the disappearance of the ϝ. Elsewhere ι+ι contracts to ι, *viz.* in τ'Ωσίρι (for τῷ 'Οσίριι) Coll. 45; 'Οσίρι 72. Hall (*Jour. Am. Or. Soc.*, xi., p. 216, 222) now reads τῷ 'Ονασίρι and 'Ονασίρι in these inscriptions, which however does not affect the question of contraction.

13. ο+ο contracts to ω, frequent in the gen. sing. of -ο- stems; *e.g.* ἀργύρω (for *ἀργύροο) Coll. 60, 6; Τιμοδάμω 23, 3; τῶ 29; 31, *et pass*; κατερόρκων (for *κατερόρκοον) 60, 1.

14. λόε Coll. 111; Φαρέω 133; χόον 88, 1; ὠτοδακῶν 103 are all too uncertain to be taken into consideration in this connection.

15.

Compensative Lengthening.

The extent to which this prevailed in Cyprian is uncertain, owing to the nature of the syllabary, which does not distinguish the long and short vowels.

The question of compensative lengthening presents itself chiefly in the development of the group -ανϛ and -ονϛ, and here the problem is still further complicated by the fact that the nasal is regularly omitted in Cyprian before a consonant in the same word (see § 23, 1). Hence the syllables *-a·se·* can stand for -ᾰϛ, -ᾱϛ or even -ανϛ. So also *-o·se·* may stand for -οϛ, -ωϛ or -ονϛ.

Under these circumstances it is perhaps simplest to follow the model of the closely related Arcadian and write ἀ(ν)θρώπος, acc. plu., Coll. 60, 3 (*cf.* Arcadian τὸς συνισταμένος, Coll. 1222, 51); so κάπος 60, 30; τός 60, 3, 10, 11, 23, 30; κασιγνήτος 60, 3, 11; ἰχμαμένος 60, 3; fut. ind. ἔξο(ν)σι 60, 31; ἴω(ν)σι 60, 31 (*cf.* Arcadian κρίνωνσι, παρετάξωνσι Coll. 1222, 5, 15); acc. plu. of -ᾱ- stems, τᾶς 60, 28, 29; 71; τᾶσδε 60, 28, 29, 30; ϝρήτᾶς 60, 28, 29.

If διμώοις (for διμώσοις, see § 20, 2), Deecke's reading in Coll. 69, were certain and the inscription really a hexameter,

we should thereby be forced to admit that ο by compensative lengthening produces ω in Cyprian, at least in this instance, since the metre requires a long syllable at that point in the verse. But Deecke's transcription of the inscription is unnatural and unsatisfactory, so that his text does not afford the basis for valid conclusions. See p. 3.

There is less doubt in case of the frequent *e·mi·; e.g.* Coll. 1, 1; 16, 20, *et pass.* This form, which might be taken for *ἐμμί* (*cf.* Lesbian *ἔμμι*, Coll. 307), in accordance with the Cyprian mode of writing doubled consonants singly (see § 24, 2), is shown to be *ἠμί* by the bilinguis, Coll. 65, which, by the side of the Cyprian syllabic signs *ka·ru·xe· | e·mi·*, has KAPVΞ EMI. The possibility that this latter may be for *ἐμμί* is not absolutely excluded, since even inscriptions written in Greek characters, particularly in the Old Alphabet, sometimes have μ, λ, ν, *etc.* for μμ, λλ, νν.

Like *ἠμί* is *Ἀμηνίϳα*, Coll. 60, 18. *Cf.* Attic *Ἀμεινίας*.

16.

Elision, Crasis, Aphæresis, Synizesis, Diæresis.

1. Certain cases of elision are few; *viz. ἀφ' ὦι* Coll. 59, 3; *Κετίων κάτ' Ἠδαλίων* 59, 1; *περ' Ἰδάλιον* 60, 27; and probably *μ' ὡρίσετυ* 126, 1.

The first of these *ἀφ' ὦι* is not to be regarded as for *ἀπὺ ὦι* (on *ἀπύ* as the Cyprian form of *ἀπό*, see § 9, 2), since the elision of ν is inadmissible. The oracle in Herod. vii., 220,

ἢ μέγα ἄστυ ἐρικυδὲς ὑπ' ἀνδράσι Περσείδῃσι,

where the final ν of *ἄστυ* is elided according to Kühner (*Ausführliche Grammatik*, I., p. 189), cannot be cited in support of such elision, since the reading is justly suspected. *Cf.* Stein *ad loc.* *ἀφ' ὦι* is rather to be taken for *ἀπὸ ὦι* and referred for its origin to the period before final ο in Cyprian became ν. Once formed, the phrase *ἀφ' ὦι* continued as a stereotyped expression even after *ἀπό* became *ἀπύ*.

The nature of the elided vowel in *Κετίων κάτ' Ἠδαλίων*

Coll. 59, 1, cannot be determined, as the origin of the word is uncertain. (See § 34, 2.)

περ' for περί in the third of the cases cited, περ' Ἡδάλιον is poetical; but the reading seems certain. *Cf.* Pindar, *Pyth.* iii., 42; περ' αὐτᾶς; *Nem.* xi., 51 περόδοις. If with Allen (*On Greek Versification in Inscriptions*, p. 150) we take Coll. 71 as a metrical inscription (see Allen, p. 46), we shall then have elision of the final ε of ποτέ, although it is written in the text. This practice of writing the elided vowel is common even in inscriptions written in Greek characters. See examples collected by Allen, p. 127 ff.

ἀλ(λ)' ἔτυχ' ἁ κήρ Coll. 68, 3, and ποτ' ἐρείσης 68, 1, are omitted as too uncertain. See p. 2.

The character of the Cyprian syllabary did not admit of the expression of elision except in case of words so closely connected in sense as to be written as one, like *a·po·i· = ἀφ' ὧι, etc.* But most words were not so written. Inscriptions which show care even separate the words by a divisor. Thus words ending in *-κε-*, *-δε*, *-σε*, *etc.*, would have to be written *-ke· -te·*, *-se·*, even if by elision the final ε disappeared, since the Cyprian had no way of expressing a final consonant without a following ε. Hence the expression of elision in case of words written separately like ὧδε ἔκερσε (*o·te· | e·ke·re·se·*); ποτε ἔρρεξα (*po·te· | e·ve·re·xa·*) was a practical impossibility.

So also in case of final -α. πά(ν)τ' ἔχεν, for instance, could be written only *pa·te· | e·ke·ne·*, which would give πά(ν)τε ἔχεν.

This fact accounts perhaps for the apparent retention of final short vowels in cases where they might be expected to suffer elision.

2. Crasis is apparently certain in τἀπί for τὰ ἐπί Coll. 37. In place of Deecke's τ'Ωσίρι (for τῶ Ὀσίρι) Coll. 45, 1, Hall (*Jour. Am. Or. Soc.*, xi., p. 216) after a re-examination of the inscription in New York now reads τῶ Ὀνασίρι. Yet it is difficult to reconcile this reading with Hall's original facsimile (Plate viii., 34) as reproduced by Schmidt (*Sammlung Kyprischer Inschriften*, xx., 6).

Meister, *Berl. Phil. Woch.*, 1885, No. 51, col. 1604, reads Coll. 103 as τὼτακῶ, *i.e.* τὼ ὠτακῶ "des Ohrenkranken," and 104 as τὼπώτω, *i.e.* τῶ ἀπώτω "des Tauben." Both these conjectures are extremely doubtful.

3. Aphæresis of ι is to be assumed in οἱ (ν) τῶ, *i.e.* οἱ ἰ(ν) τῶ Coll. 60, 31. Deecke also assumes aphæresis of α in θεῶι ἀλ(λ)'; but α is written, and the reading labors under too many difficulties to be accepted as correct. So Hall's τά(ν)δε 'ν 'Απόλ(λ)ωνι (*Jour. Am. Or. Soc.*, xi., p. 223) = Coll. 76, cannot be regarded as certain in view of Cesnola's plate (*Cyprus*, Plate II., 10).

Deecke's οὐ γάρ τι ἐπισταῖς Coll. 68 is best explained by aphæresis of ε (see Allen, *Versification in Greek Inscriptions*, p. 74) rather than by assuming a hiatus and shortening of the ι before στ, though the latter is proposed by Deecke (*Bezz. Beitr.*, vi., p. 80).

4. Synizesis is maintained by Deecke for θεῶι Coll. 68, 4, and θεοῖς 68, 2, with reason, if these words really begin hexameters, which is not certain. Synizesis in χόον in Coll. 88 is uncertain.

5. Diæresis is claimed by Deecke, Coll. 68, 3, in *ο·νο·*, which he takes for οὐ. This seems hardly possible. Diæresis in such a word would be surprising under any circumstances. The parasitic ϝ (see § 17, 2) is not elsewhere found after ο, and even if it were, we should expect the last syllable of the word to appear as *νι·*, not as *νο·*. The fact that no character has yet been found for *νι·* cannot be held to support Deecke's view. If the sound had existed, the character for it would have existed also. On a similar view advanced by Deecke for Δαϝατίσαο Coll. 58; Δαϝαφᾶς ὁ Ἄϝαρος 31, 1; 32, 1, see § 18, 2.

Consonants.

17.

ϝ.

1. Initial ϝ is regularly retained in Cyprian, always in the Bronze Tablet. The instances are ϝάναξ Coll. 18, 1; 59, 2;

68, 1; abbreviated to ϝα · 154; ϝανάσ(σ)ας 38, 4; 39, 2; 40, 1; ϝεικόνα 76, 2; ϝέπι̣ϳα (ἔπος) 60, 26; ϝέτει 59, 1; 60, 1; ϝοῖ (*i.e.* σϝοῖ) 59, 3; 60, 29; ϝοίκωι 60, 6; ϝοίνω 73, 1; ϝρήτας (*cf.* ϝρήτρα) 60, 28, 29; ϝανάσ(σ)ας *Bezz. Beitr.*, xi., p. 315; 316.

The only exceptions are ἀνάσ(σ)ας Coll. 33, 1; ἔτει 76, 1; ῥέζω (doubtful) 150. The absence of initial ϝ in ἔλει Coll. 60, 9, furnishes clear evidence, in view of its retention elsewhere in the same inscription, that the word has no etymological connection with Lat. *vallis*, as still maintained by Curtius, *Grundzüge der Griechischen Etymologie*,[5] p. 360.

Medial ϝ is also regularly retained, always in the Bronze Tablet. The instances are: αἰϝεί Coll. 60, 31; ἄλϝω 60, 9, 18, 21 (*cf.* the Hesychian gloss ἄλουα · κῆποι, Κύπριοι, where ου is used to represent the bilabial character of Cyprian ϝ (see § 13, 1); βασιλῆϝος 39, 1; 46; 47; 59, 1; 60, 6, 8, 17; 153; 154; 176; 177; 178; 179; Διϝείθεμις 60, 21; δοϝέναι 60, 5, 15; ἔϝρεξα 71; ἐϝρητάσατυ 60, 14; Ἐτεϝά(ν)δρω 46; 67; εὐϝεργεσίας 71; εὐϝρητάσατυ 60, 4; Ἠδαλιῆϝες 60, 2; Θόρϝο(ν) 60, 19; ἱερῆϝος 1, 1; κατεϝόρκων (*cf.* Hom. (ϝ)έρκος) 60, 1; κενευϝόν (*i.e.* κενεϝόν; see § 13, 1) 20, 2; νεοστάτας 59, 2; Νικοκλέϝης 40; Νικοκλέϝος 179; οἴϝωι 60, 14; Ὀνασίϝοικος 27, 183; Στασίϝοικος 193; 27; 183; Τιμοϝώρω 143; Τιμοκλέϝεος 36; 64; Ἀριστοϝάναξ *Berl. Phil. Woch.*, 1886, No. 41, xii.; Ἀριστοκλέϝης *Berl. Phil. Woch.*, 1884, No. 21; Τιμοϝάνακτος *ibid.*; Ὀνασιϝοίκω *Berl. Phil. Woch.*, 1887, No. 52, col. 1644; Νικοκλέϝης *Bezz. Beitr.*, xi., p. 315; p. 316; ἔϝεξε (*cf.* Lat. *veho*) *Studia Nicolaitana*, p. 67; βίϝα (= ζῶσα; *cf.* βί(ϝ)ος, Lat. *vivus*) Prellwitz's reading of Coll. 134 (see *Bezz. Beitr.*, ix., p. 172).

Ἀριστοκόϝων, Deecke's reading in Coll. 45, 1, is not certain. Hall (*Jour. Am. Or. Soc.*, xi., p. 216) after a fresh examination of the inscription in New York reads Ἀριστόγων; but this does not seem possible, judging from the copy of the inscription given by Schmidt (*Sammlung Kyprischer Inschriften*, xx., 6 a).

διζάϝω Coll. 70 is extremely doubtful.

ἐϝείσης 68, 1, has ϝ, but the exact form of the word is uncertain; see § 12, 2.

εὐζαϝεῖτε 56 is impossible as a Cyprian word; but the ϝ is certain.

Γιλ(λ)ίκαϝος Coll. 29; Γιλ(λ)ίκαϝι *Berl. Phil. Woch.*, 1886, No. 41, ii.; Σαμᾶϝος *Berl. Phil. Woch.*, 1887, No. 12, col. 380, are Phœnician names.

Ζόϝης and Ἀχαιϝός communicated by Sayce in *Berl. Phil. Woch.*, 1884, No. 21, are doubtful, and need confirmation.

Exceptions to the retention of a primitive medial ϝ are more frequent than in case of initial ϝ. We find the following: βασιλῆος (*cf.* βασιλῆϝος) Coll. 17, 1; 38, 1; 40, 2; 154, 155, a, b; 156; 193; Διός (*cf.* Διϝείθεμις) 73, 1; Ἐτεοδάμα (*cf.* Ἐτεϝά(ν)δρω) 135; Θεοκλέος (*cf.* Νικοκλέϝης) 126, 1; ἱερῆος (*cf.* ἱερῆϝος) 38, 3; Τιμοκλέος 35; Διί *Berl. Phil. Woch.*, 1886, No. 41, ix.; βασιλῆος *Bezz. Beitr.*, xi., p. 316; Νεα-? 76. Νωμήνιος *Berl. Phil. Woch.*, 1886, No. 42, col. 1323, is a contracted form (see § 14, 10) for Νεομήνιος; *cf.* νεϝοστάτας Coll. 59, 2.

On Ἠδαλιῆϳι Coll. 60, 31 instead of Ἠδαλιῆϝι, see § 18, 4.

Several inscriptions seem to belong to a transition period and exhibit some forms with ϝ and some without; *e.g.* in Coll. 38 βασιλῆος, ἱερῆος, but ϝανάσ(σ)ας; in 39 Τιμοχάριϝος, βασιλῆϝος, ϝανάσ(σ)ας, but ἱϳερῆος; in 40 Νικοκλέϝης, ϝανάσ(σ)ας, but βασιλῆος; identical with Coll. 40 is the inscription given by Deecke in *Bezz. Beitr.*, xi., p. 316.

2. In addition to the ϝ above mentioned the Cyprian has developed a semi-vocalic υ between υ or ευ and a following α or ε, which it also expresses by ϝ. The instances are: δυϝάνοι (for δύ-ανοι, root δυ-; see § 9, 1) Coll. 60, 6; Εὐϝαγόρω 153; 154; abbreviated Εὐϝαγό· 155 b; 157; Εὐϝα· 155 a; 156; 159; Εὐϝά(ν)θης 163; Εὐϝά(ν)θεϝος 161; Εὐϝά(ν)θεος 162; Εὐϝέλθων 171, 172; Εὐϝέλθο(ν)τος 165; 167; 168; 169; κατεσκεύϝασε 31, 3. The preposition ὕϝαις, 60, 10, 22, 28, is also probably to be explained in the same way; see under *Prepositions*, § 33, 5.

εὐϝεργεσίας, which Meyer (*Gr. Gr.*,[2] § 157) refers to this

category, does not belong here, but the *ϝ* is part of the root. (*Cf.* Cyprian ἔϝρεξα Coll. 71.) βασιλεύϝο(ν)τος, 59, 1, also mentioned by Meyer in the same connection, should be omitted. The syllabic text gives only *pa·si·le·u·*, *i.e.* βασιλευ-; -ϝο(ν)τος is conjectural.

The development of this parasitic *ϝ* occurs regularly between every υ and a following ε or α. As an exception must be noted ὑνευξάμενος (*i.e.* ἐπ-ενευξάμενος; on ὑ-, see § 33, 4) Coll. 45, 2. Deecke's reading here has been questioned by Hall (*Jour. Am. Or. Soc.*, xi., p. 216), who suggests that the sign for *u·* here is a mistake of the stone-cutter for *mi·*, lacking simply the lower transverse stroke of the sign for that syllable. This *mi·* he takes for μι(ν), with omission of the final ν (see § 23, 2, 5), regarding it as the pronoun of the 1st person; see § 31, 2. But the omission of final ν before a vowel is inadmissible; see § 23, 4. Hence I believe Deecke's reading is to be sustained.

Meyer, *Gr. Gr.*,[2] § 239, suggests that νευξάμενος may be for ϝευξάμενος, comparing the Hesychian glosses νέσις (*i.e.* ϝέσις)· στολή; νάλη (*i.e.* ϝάλη)· σκώληξ. But I see nothing to support this hypothesis, and should be inclined to attribute the glosses to a later stage of the dialect.

The above phenomenon of the development of a parasitic *ϝ* is not confined to the Cyprian, but occurs also in other dialects; *e.g.* Bœotian Βακεύϝαι Coll. 458; Corcyræan ἀριστεύϝοντα Roehl, *Inscriptiones Graecae Antiquissimae*, 343.

3. The *ϝ* of Τιμοχάριϝος Coll. 39, 1; 193 and Κυπροκράτιϝος 26 is difficult to explain. These words are both -ι- stems, and as such their genitives should be Τιμοχάριος, Κυπροκράτιος. That *ϝ* cannot have developed regularly between ι and ο seems clear. Spitzer (*Laut. Ark. Dial.*, p. 51) suggests the following explanation. It is to be assumed that the intervocalic *ϝ* in Cyprian gradually lost its sound and disappeared as in other Greek dialects. Evidences of this have been given above in such forms as βασιλῆος ἱερῆος, as against the earlier βασιλῆϝος, ἱερῆϝος, *etc.* That the forms without *ϝ* are in general the younger there can be no reason to doubt.

Spitzer assumes that the spelling with ϝ was retained in these and similar words, as an archaism, even after the had lost its sound. *Cf.* in Latin the retention of C as G in *Cajus, Cnaeus*, long after C had assumed the sound of K. So in Cyprian he believes that *βασιλῆϝος etc.* continued to be written, even after *βασιλῆος* began to be spoken, and that after this analogy Τιμοχάριϝος and Κυπροκράτιϝος arose, though Τιμοχάριος and Κυπροκράτιος were spoken, the ϝ being superfluous.

This view of Spitzer has much to commend it, especially the fact that one of the inscriptions in which Τιμοχάριϝος occurs (Coll. 39) belongs clearly to the transition period when ϝ was beginning to disappear (at least in the vicinity of Paphos), as is evinced by the form *ἱερῆος* beside *ϝανάσ(σ)ας* and *βασιλῆϝος*. *Cf.* also Coll. 38 and 40. This period of uncertainty in the employment of ϝ would furnish just the conditions for the rise of forms like Κυπροκράτιϝος and Τιμοχάριϝος.

Πρώτιϝος *Berl. Phil. Woch.*, 1887, No. 12, col. 379, if correct, is to be explained in the same way. So also the second ϝ of Εὐϝά(ν)θεϝος (for Εὐϝά(ν)θεος, nom. Εὐϝά(ν)θης) Coll. 161, were the reading at all certain.

18.

j.

1. Between ι and a following α, ε or ι, a semi-vocalic ι has frequently been developed, which is generally written *j*. This is often called the parasitic *j*. The instances are the following: —

a) *j* between ι and α.

Ἀλλα(μ)πριϳάται Coll. 60, 8; Ἀμηνίϳα 60, 18; ἀ(ν)δριϳά(ν)ταν (*cf.* Att. ἀνδριάς) 59, 2; ἀνοσίϳα 60, 29; Ἀριστίϳαυ 20, 1; ἀτελίϳα (Ion. ἀτελέα) 60, 23; Διϳαίθεμι 74, 1; ϝέπιϳα (Ion. ϝέπεα) 60, 26; ἱερήϳιϳαν 60, 20; ἰϳᾶσθαι 60, 3; ἰϳατῆραν 60, 3; Μαλανίϳαι 60, 17; Μιλκιϳάθωνος 59, 1; Παφίϳας 15, 1; Παφίϳα(ν) 69; πεδίϳαι 60, 18; Στασίϳας 18; Στασίϳαυ 17, 1;

τέρχνιϳα 60, 9, 18, 22; κατέθιϳαν 60, 27; Ἀριστίϳα *Berl. Phil. Woch.*, 1886, No. 52, xx.

It will be seen by the above examples that this change took place as well after the ι which developed from an original ε (see § 7, 1) as after primitive ι; *cf.* ρέπιϳα, τέρχνιϳα, *etc.*

In the Bronze Tablet this *j* has developed without exception between every ι and α. Elsewhere we find exceptions. Thus Παφίας Coll. 1, 1; 2, 1; 4; 5; 6; 7; 8; 9; 10; 11; 12; Παφίαι 1, 3 (*cf.* Παφίϳα(ν) 69; Παφίϳας 15, 1); Γολγίαι 61; Διάθεμι(ς) (*cf.* Διϳαίθεμι(ς) 74, 1) 100; ἀ(ν)δριάς *Berl. Phil. Woch.*, 1887, No. 12, col. 380; ἀ(ν)δριά(ν)ταν *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

b) *j* between ι and ε.

ἰϳερεύς Coll. 40, 1; ἰϳερήϛ 33, 1; ἰϳερῆος 39, 3; ἰϳερεύς *Bezz. Beitr.*, xi., p. 316.

This change does not hold for the Bronze Tablet, *viz.* in ἱερήϳιϳαν 60, 20. Other exceptions are ἱερῆϝος 1, 2; ἱερῆος 38, 3; Κυριεύς 193; ἱερῆος *Bezz. Beitr.*, xi., p. 315.

j does not develop between ι and η. Thus we have Ἡδαλιῆϝες Coll. 60, 2; Ἡδαλιῆϳι 60, 31; Κετιῆϝες 60, 1, where we might have expected Κετιϳη-, Ἡδαλιϳη-. Deecke writes these words Ἡδαλιέϝες, Ἡδαλιέϳι, Κετιέϝες. With that reading we should simply have additional illustrations of the absence of *j* between ι and ε in the Bronze Tablet.

c) *j* between ι and ι.

The only example is πτόλιϳι Coll. 60, 6. On the other hand Διί *Berl. Phil. Woch.*, 1886, No. 41, ix.

The Pamphylian exhibits precisely the same development of a parasitic semi-vowel between ι and a following vowel. This it writes (with Greek letters) as ι; *e.g.* ϝέτιμα (*i.e.* ϝέτιϳα, Ion. ἔτεα) Coll. 1267, 5; διμά *ibid.*; ἰμαροῖσι, Ἐστϝέ(ν)διμυς (= Ἀσπένδιος) 1259.

Between ι and ο, or ι and ω, *j* never develops in Cyprian; *e.g.* Διός Coll. 73, 1; Ἀφροδισίω 86, 4; ἴωσι 60, 31. The assumption therefore of Spitzer (*Laut. Ark. Dial.*, p. 51) of the forms Τιμοχάριϳος 39, 1; φρονίϳωί 68, 4, is without foundation; and Meister's conjecture of μνάϊϳον as new reading

of Coll. 41, 3 (*Berl. Phil. Woch.*, 1887, No. 52, col. 1644) is very improbable.

2. Besides this parasitic *j* we also find *j* in the proper names Δa̯jατίσαο Coll. 58, which Deecke suggests may be for Δαϊτίσαο. But this is purely conjectural. Δa̯jαφᾶς and Ἄja̯ρος Coll. 31, 1; 32, 1, which Deecke previously took in the same way, are now read by him *Bezz. Beitr.*, xi., p. 319, as Τάρβας and ἀρχός.

3. Deecke's reading ἱερέi̯i̯αν in Coll. 60, 20 makes difficulty by the presence of the first *j*. This might possibly be taken as indicating merely that the ε and ι were spoken separately, *i.e.* as εϊ. But ει elsewhere in the same inscription is not so written, *viz.* in ἔλει, line 9; ϝέτει, line 1; and it seems to me better on the whole to write ἱερῆi̯i̯αν and to consider the η as developed from ε, just as in case of the Doric adjectives in -ηιος for -εῖος (see Meyer, *Gr. Gr.*,[2] § 67); *e.g.* Cretan πρυτανήϊον cig. 2554, 51; Delphian ἰαρήια cig. 1688, 14; and the Ionic substantives ἀληθηΐη, μαντηΐη. *Cf.* also Bœotian μαντεία (*i.e.* μαντηΐα) Coll. 494, 2.

Cyprian ἱερῆi̯i̯αν is identical with these formations except that it retains the *j*, which in the other dialects disappears in the preceding η; or, we may assume that a new *j* has developed between η and following ι.

4. Ἡδαλιῆi̯ι (Deecke writes -ἑi̯ι) Coll. 60, 31 is still more perplexing. We should have expected here Ἡδαλιῆϝι, dat. sing. of Ἡδαλιεύς; *cf.* Ἡδαλιῆϝες Coll. 60, 2; Κετιῆϝες 60, 1. The form Ἡδαλιῆi̯ι cannot be derived from Ἡδαλιῆϝι by any phonetic process, nor can I see any plausible explanation of its origin by association or analogy.

5. Change from ι to *j* before a vowel has been assumed by Deecke in case of the diphthongs ει, οι, υι in ὁσέi̯a for ὁσεία (*i.e.* ὁσίᾱι) Coll. 41, 3; δοi̯âι (for δοιâι) 41, 3; φύi̯η (for φυίη) 126, 3. The two former of these examples are no longer maintained by Deecke (see *Bezz. Beitr.*, xi., p. 317), and the last one, φύi̯η, is not by any means certain in its reading.

I believe therefore that we are not as yet justified in claim-

ing this change of ι to *j* for the Cyprian. Yet the change is probable enough in itself and must have occurred in other dialects as preliminary to such forms as Arcadian *ποέντω* (for *ποιέντω*, *i.e.* *ποιέντω*), Coll. 1222, 9; Lesbian *δικάως* (for *δικαίως*, *i.e.* *δικαίως*) 304, A, 44.

6. On *jαρά* for *ἰαρά*, *i.e.* *ἱερά*, see § 1, 2.

19.

ζ.

In Cyprian, ζ corresponds not only to ζ of the other dialects, *viz.* in *ζᾶν* (*cf.* Att. *ζάω*) Coll. 60, 10, 23, 28; *ῥέζω* (?) 150, but also sometimes to γ of the other dialects, *viz.* in *ζᾶ* (= *γᾶ*) 'earth,' Coll. 60, 8, 17, 24 and *ἀζαθός* (= *ἀγαθός*) 37, 3; 59, 4.

These two latter forms probably developed a parasitic ι after the original γ, and this *γι* then regularly became ζ. This change has an analogon in the word *ζεύσασθαι* (for **γιεύσασθαι*) given by Hesychius as dialectic form of *γεύσασθαι*. *Cf.* the Arcadian *ζέλλειν* (for **γιέλλειν*) · *βάλλειν*, Hesych.

20.

σ

1. Final σ disappears in a few instances, *viz.* *Ὀνασίωρο Ἀ . . .* (for *Ὀνασίωρος Ἀ . . .*) Coll. 75, 1; *Διϳαίθεμι τῶι* (for *Διϳαίθεμις τῶι*) 74, 1; *Διάθεμι(ς) ϝα . . .* 100; *κα(ς)* ('and') *ἀ(ν)τί* 60, 5; *κά(ς) μεν* 71, 1; *τᾶ(ς) ϝανάσ(σ)ας* 38, 4; *τᾶ(ς) ὑχήρων* 60, 5 (twice); *Γιλ(λ)ίκα(ς) Ὀνασιμάλα* 120, 1; in composition *πο-εχόμενον* (for *ποσ-εχόμενον*, *i.e.* *προσεχόμενον*) 60, 19, 21; *Εὐϝά(ν)θη(ς)* 163; *Ἄν(ν)α(ς) Ἀμό(ν)τα* 147; *Γιλ(λ)ίκα(ς) με Studia Nicolaitana*, p. 68; *ὁ ἐξ ὀρύξη* Coll. 60, 12, 25 may be either for *ὃς ἐξ ὀρύξη* (with omitted -ς) or *ὅ* may be the article used as relative.

The above data do not warrant us in drawing any positive conclusion as to the law of this change. Omitting *ὁ ἐξ ὀρύξη* as capable of other interpretation, the remaining twelve instances present six cases of the disappearance of -ς before

vowels, five before consonants, and one where no other sound follows. We can hardly infer from this that the disappearance of -ϛ took place through the medium of its change to the rough breathing, since in that event we should expect it to be confined to those cases where the following word had an initial vowel. Meyer (*Gr. Gr.*,[2] § 305) in judging of the Bœotian proper names in -ει for -εις assumes that the peculiarity originated before initial vowels, and was subsequently extended in its use. The same may be true for the Cyprian. But since this peculiarity is confined almost exclusively to proper names and in them is found in the whole field of Greek inscriptions, it may be better to assume a weak pronunciation of final -ϛ in this class of words. This, however, would leave Cyprian τᾶ, κά, and πο- unexplained. It should be noted that, while κά and τᾶ (for κάϛ and τᾶϛ) are found in the above-mentioned instances, the full forms κάϛ and τᾶϛ are frequent, *e.g.* τᾶϛ ἀνάσ(σ)αϛ Coll. 33, 1; τᾶϛ εὐχωλᾶϛ 59, 3; κὰϛ ἐξ 60, 6. τᾶ Ἐτεοδάμα· πῖθι Coll. 135, which Deecke (*ad loc.*) suggests may be for either τᾶϛ Ἐτεοδάμαϛ or τᾶι Ἐτεοδάμα, is better taken with Dittenberger as τᾶ, Ἐτεοδάμα, πῖθι, in which τᾶ is the regular Cyprian form of the Homeric τῆ 'take,' and Ἐτεοδάμα is vocative. *Cf.* ι 347 Κύκλωψ, τῆ, πίε οἶνον. This would add another illustration of the influence (already beyond question) of the Homeric diction upon the Cyprian vocabulary. *Cf.* Deecke-Siegismund in Curtius' *Studien*, vii., p. 262; Smyth, *On Poetical Words in Cyprian Prose*, *Am. Jour. Phil.*, viii., 4.

εὐχωλᾶ Coll. 27, 2, which might also possibly be taken for a genitive or dative (see § 25, 5), is, I believe, best taken as a nominative. *Cf.* ἀρὰ Ἀνάω Coll. 97; ἀρὰ Διί *Berl. Phil. Woch.*, 1886, No. 41, ix.

Deecke's κὰ πότι Coll. 68, 1; [κὰ] θνατοῖϛ 68, 2; and σὶ(ϛ) (for τὶϛ) 126, 1, are doubtful.

2. Deecke (*Bezz. Beitr.*, vi., p. 81; p. 147) seeks to establish the loss of intervocalic σ, or at least its change to the rough breathing in two instances, *viz.* φρονέωί (for φρονέωσι) Coll. 68, 4 and διμώοῖϛ (for *διμώσοιϛ, *i.e.* *διμόντιοϛ) 69.

This change is well assured for other dialects, *e.g.* Laconian ἐνήβώαις for ἐνήβώσαις Cauer, *Delectus*², 17, 15; Ἀγηΐστρατος for Ἀγησίστρατος 22, 8. The Hesychian glosses καΐνίτα, *i.e.* κασιγνήτη; σαᾶμα, *i.e.* σησάμη; ἴμαον· πάταξον, and others, given as Cyprian, also point to the change in question, at least for some period of the Cyprian dialect. But the reading in the two instances claimed by Deecke cannot be regarded as certain, especially in view of the numerous difficulties of the context; see pp. 2, 3. Moreover, the prevailing usage of the dialect in all other cases is to retain the σ arising secondarily by assibilation of τ, such as we have in φρονέωσι and διμώσοις, *e.g.* ἔξβασις 31, 2; ἔξο(ν)σι 60, 31 (the (ν) not absolutely certain). *Cf.* also κασίγνητος 60, 14; βασιλεύς 17, 1.

It is, therefore, impossible from existing inscriptions to admit the existence of any such change of σ to the spiritus, as is insisted upon by Deecke. The glosses given by Hesychius are doubtless to be referred to a much later period than that to which our inscriptions belong. *Cf.* the parallel case of the Laconian glosses exhibiting rhotacism cited by Hesychius, βουαγόρ (*i.e.* βουαγός), γῶνορ (*i.e.* γῶνος). Yet this change is not attested by a single pre-Christian inscription. See Müllensiefen, *De Titulorum Laconicorum Dialecto*, p. 54 f.

3. Meister in the *Berl. Phil. Woch.*, 1885, No. 51, col. 1604 (*cf.* Baunack, *Die Inschrift von Gortyn*, p. 23), seeks by circuitous combinations to explain another word on the above principle of ' for σ, *viz.* ποί in ποὶ τὼτακῶ, *von dem Ohrenkranken*, his proposed reading of Coll. 103. This preposition ποί he explains as follows. From primitive Greek ποτί arose in the Arcado-Cyprian dialect *ποσί by assibilation. Before vowels this appeared as πός, *e.g.* Arcadian πόσοδος Coll. 1222, 9. After the separation of the Arcadian and Cyprian, πός in Arcadian excluded its sister form *ποσί, and we accordingly find πός alone; *e.g.* πὸς τâι 1222, 54; ποσκατυβλάψη 1222, 38. But ποσί and πός were both retained in Cyprian. The latter occurs in πὸς Θόρϝο(ν) Coll. 60, 19; πὸς τάν 60, 19; πὸς Πασαγόραν 60, 21; *ποσί,

however, first lost its intervocalic σ (for which Meister compares *φρονέωί* already discussed above), becoming *ποῖ* and then *ποί*. It is this latter form which Meister reads in *ποὶ τὼτακῶ* Coll. 103. This *ποί*, he considers, became still further reduced to *πο-* in *πο-εχόμενον* for *ποι̯-εχόμενον* Coll. 60, 19 (*cf.* Arcadian *ποέντω* for *ποι-έντω*). This would remove the necessity of assuming loss of σ in this word, as explained above, 1.

Against this view of Meister's is to be urged

1) Assibilation of τ in case of *ποτί*, though naturally to be expected, is not attested by any Greek dialect. We find *ποτί* in Homer; **ποσί* is unknown.

2) If the form **ποσί* had originated from *ποτί* we should expect it to remain **ποσί*, since the σ arising in this way is not wont to disappear. *Cf.* *εἴκοσι* (primitive form *ϝίκατι*), *φάσις* (from **φάτις*).

3) The example, which Meister cites to illustrate the disappearance of σ arising from τ before ι, *viz.* *φρονέωί*, we have already seen above (2) is quite doubtful and opposed to the clear laws of the dialect. Argive *ποί*, which Meister cites (relying evidently upon Cauer, *Delectus*[2], 62, 9 and Etym. Mag. 678, 44) is not sufficiently assured. Locrian *ποῖ τόν*, which Bechtel defends in Coll. 1479, 14, is taken by Allen (*De dialecto Locrensium*, p. 67 = *Studien*, iii., p. 271) and Roehl, *Inscriptiones Graecae Antiquissimae*, 322, b, 5, as a mistake of the stone-cutter for *ποὸτ τόν*, in which *πότ* is by apocope for *ποτί*. *Cf.* Meyer, *Gr. Gr.*,[2] § 299, note. Allen compares Locrian KAITO, which he takes for *κὰτ τό*, Coll. 1478, 46.

4) As to the origin of *ποεχόμενον* from *ποιεχόμενον* by the disappearance of the ι (through the medium of *ι̯*), such a change should be accepted cautiously, even were the existence of *ποί* proven. We have no instances of the Cyprian treatment of the *ι̯* (*j*) developing from the second part of diphthongs (αι, ει, οι, υι) unless perchance *φύ̯ῃ* Coll. 126, 3 be such an instance. That certainly would not make for Meister's view, but would lead us rather to expect *πο̯εχόμενον*.

21.

π.

Indogermanic *q*[1] apparently develops irregularly as π (instead of τ) before ε and ι in several words: —

1. πείσει (Idg. root *qei-*), Coll. 60, 12, 25, corresponds to Attic τείσει (on this and not τίσει as the correct form, see above, § 12, *ad in.*), fut. ind. 'shall pay.' Attic τείσει represents the regular development of *q*. Cyprian πείσει has undoubtedly borrowed its π from other formations of the same root, where π was phonetically justified, *e.g.* *πέ-ποι-α (perfect), ποινή 'pay.' *Cf.* Thessalian ἀππεισάτου (*i.e.* ἀποτεισάτω) Coll. 1332, 28, where the same irregularity occurs.

2. πεφαμέρων, Coll. 59, 2, *i.e.* πε(μ)φαμέρων (see § 23, 1, 2) gen. sing. of πε(μ)φ-άμερον, 'five days' period' (*cf.* Att. πενθήμερον) points to πέμπε (Idg. *penqe*) as the form of the numeral for 'five' in Cyprian as well as in Lesbian. Here also the π (for τ) owes its origin to the influence of other primitive formations from the stem *penq-*, *e.g.* πεμπάς, where the π before α was regular.

3. In ὅπισις (= ὅστις; see § 22, 2) ὅπι- is an adverbial formation from the pronominal root *qi-*, which like πείσει (see above, 1), ought regularly to appear as -τι-. The π is to be explained as borrowed from forms such as ὅπως, ὁπότερος *etc.*, where π for Indogermanic *q* before ο and ω is regular.

22.

Assibilation of τ *before* ι.

1. This occurs as in Attic in the verbal ending -(ν)σι (see above) for -ντι, and elsewhere. The examples are ἔξο(ν)σι for ἔξοντι (Att. ἔξουσι) Coll. 60, 31; ἴω(ν)σι 60, 31; ἔξβασις (Att. ἔκβασις; see § 24, 1) 31, 2; 32, 1; πόσις 26, 2.

ἔτι 73, 1 and ἀ(ν)τί 60, 5, *et pass.* retain the τ as in all dialects.

[1] Following Brugmann's use of this character in his *Grundriss der Vergleichenden Grammatik.*

κάτι has been assumed by Deecke, as the full form of the elided κάτ' 'and' in κάτ' Ἡδαλίων Coll. 59, 1. If this is correct, the form would belong with ἔτι and ἀ(ν)τί. At all events we are not justified in assuming that the form κάς 'and' originated from κάτι by the latter's becoming *κάσι, whence (before vowels) κάς.

So also πός Coll. 60, 19, 20, 21 is not to be explained as the ante-vocalic form of *ποσί (for ποτί), since ποτί so far as known never assibilates its τ. The ς of πός must be explained in some other way; see § 33, 3. ποτ', which Deecke reads in Coll. 68, 1, by elision for ποτί, is perfectly consistent with the existence of πός in Cyprian (see § 33, 3), but the context is so doubtful that small probability attaches to this form.

2. The indefinite σὶς (for τὶς) occurs Coll. 60, 10, 23; and ὅπισις 60, 29. This is irregular, since initial τ before ι is not assibilated; yet the form is certain. Possibly, τὶς as an enclitic, was so closely connected with the preceding word as to be felt as a part of it. In this way the τ became intervocalic and so changed to σ. This is the explanation of Meyer, *Gr. Gr.*², § 299, and in support of it may be cited Att. ἄττα, which developed from the primitive nom. pl. neuter of τὶς, *viz.* τ̣ιά, in such phrases as χρήματά τ̣ια. The two words in such instances were so closely connected as to be treated like one. Hence χρήματά τ̣ια became regularly χρήματάττα. This was felt as χρήματ' ἄττα, so that ἄττα arose as an independent word. The only objection that can be urged against this explanation of σὶς is that Hesychius gives us σί as an interrogative pronoun in the gloss σί βόλε· τί θέλεις. Κύπριοι.

Deecke's τὶ in Coll. 68, 3, is to be rejected. The reading is uncertain, and the form highly improbable by the side of σὶς.

3. Deecke reads πότι Coll. 68, 3, as vocative of πότις, 'lord.' The word occurs, however, in 26 as πόσις, with regular assibilation of the τ. The fact that we always find πόσις in other dialects would certainly tend under any cir-

cumstances to discredit πότις in Cyprian, especially as τ in this dialect regularly suffers assibilation; but the assumption that πότις existed beside πόσις in the same dialect is entirely untenable. Another fact which makes against Deecke's reading is that the word never has the sense of 'lord' in Greek, a sense which he attaches to it in the present instance.

23.

Loss of Nasals.

1. Before a consonant in the same word the nasals ν, μ, γ were always dropped. This is generally indicated by putting the omitted nasal in parenthesis. The instances are the following: —

1) Omission of ν.

ἀ(ν)δριϳά(ν)ταν (Att. *ἀνδριάντα*) Coll. 59, 2; *ἀ(ν)θρώπος* 60, 3; *ἀ(ν)τί* 60, 5, 15, 17; *Ἀμό(ν)τα* (?) 147; *Α(ν)τίφαμος* 83; *Ἀριστόφα(ν)τος* 28; *ἐπιό(ν)τα* 60, 9, 19, 22; *Ἐτεϝά(ν)δρω* 46; 47; *Εὐϝά(ν)θη* 163; *Εὐϝά(ν)θεϝος* 161; 162; *Εὐϝέλθο(ν)τος* 165; 167; 168; 169; *ἰό(ν)τα* 60, 23; *Ὀνάσα(ν)τος* 30; *πά(ν)τα* 60, 10, 19, 22; 68, 4; *ταλά(ν)των* 60, 7; *τά(ν)δε* 60, 26; 76, 2; 88, 1; *τό(ν)δε* 59, 2; 60, 13, 25; 72, 1; *Φα(ν)τασίω* 81; *ἀ(ν)δριά(ν)ταν* *Berl. Phil. Woch.*, 1886, No. 42, col. 1323; *ἀ(ν)δριάς* *Berl. Phil. Woch.*, 1887, No. 12, col. 380.

2) Omission of μ.

πε(μ)φαμέρων Coll. 59, 2; *Ἀλα(μ)πριϳάται* (*cf.* the present "Alambra, twenty minutes' ride west of Dali," Cesnola, *Cyprus*, p. 87). Meister's conjecture of *ὀ(μ)βά[ντι]* in his new reading of Coll. 41 (*Berl. Phil. Woch.*, 1887, No. 52, col. 1644) is quite uncertain.

3) Omission of γ.

Probable in *Ὀ(γ)κα(ν)τος* Coll. 60, 9; *Πα(γ)κρα-* 62, 2.

In Pamphylian inscriptions ν disappears similarly before τ or δ in the same word; τ under such circumstances changes to δ, *e.g.* *πεδεκαίδεκα* (*i.e.* *πεντεκαίδεκα*) Coll. 1267, 5; *ἐξάγωδι* (*i.e.* *ἐξάγωντι*) 1267, 16, 20; *γένωδαι* 1267, 20; *Ἐστρέδιμυς* (*Ἀσπένδιος*) 1259.

2. Certain short words ending in a nasal, and closely connected in thought with the following word, omit the nasal, as in the interior of a word. These words are the forms of the article *τόν, τάν, τῶν*; the preposition *ἰν*; and the pronoun *μιν* (= *μεν, i.e. με*; see § 31, 1). The instances are

1) *τόν*:

τὸ(ν) χῶρον Coll. 60, 18; *τὸ(ν) χρανόμενον* 60, 9; *τὸ(ν) χραυζόμενον* 60, 18; *τὸ(ν) ποεχόμενον* 60, 19, 21; *τὸ(ν) Δρυμίων* 60, 19; *τὸ(ν) κᾶπον* 60, 20; as relative in *τὸ(ν) Διρεί̈θεμις* 60, 21; *τὸ(ν) δόμε(ν)* 126, 2 is improbable; see § 31, 4;

2) *τάν*:

τὰ(ν) πτόλιν 60, 1; *τὰ(ν) δάλτον* 60, 26; *τὰ(ν) θιόν* 60, 27; *τὰ(ν) δίφατο(ν)* 69; *τὰ(ν) ϝεικόνα* 76, 2;

3) *τῶν*:

τῶ(ν) παίδων 60, 11, 30; *τῶ(ν) κασιγνήτων* 60, 14;

4) *ἰν*:

ἰ(ν) τύχαι 17, 2; 27, 2; 28; 31, 4; 37, 3; 59, 4; 72, 2; *Berl. Phil. Woch.*, 1886, No. 42, col. 1323; 1887, No. 12, col. 380; *ἰ(ν) τῶι* Coll. 60, 1, 3, 8, 9; *ἰ(ν) τᾶι* 60, 8; *ἰ(ν) Μαλανί̈αι* 60, 17; *ἰ(ν) Σί̈μ(μ)ιδος* 60, 20; *οἰ (ν) τῶ* (with aphæresis of the ι; see § 16, 3) 60, 31;

5) *μιν*:

μὶ(ν) κατέθηκε 1, 2; 2, 2; probably also in *σὺ(ν) τύχα* 120, 4.

The above words always lose the *ν* before a consonant, without exception. The forms *τόν, τάν, etc.*, occur only before vowels.

The omission of *ν* has also been claimed by Meyer (*Gr. Gr.*[2], § 113, note) for *ἤν* (*i.e. ἐάν*). Meyer would read *ἤ(ν) κε* in Coll. 60, 10, 23. But the existence of *ἤν* has already been shown to be improbable (see § 14, 6), and Deecke's reading *ἠ* (= *εἰ*) is sufficiently justified by the occurrence of *ἠ* in Cretan.

3. Loss of final *ν* before an initial consonant in other cases than those above mentioned is to be accepted with caution. *Θόρϝο(ν) τόν* Coll. 60, 19 and *ἄλϝο(ν) τόν* 60, 21 seem certain. But other instances given by Deecke are doubtful,

viz. *ναὸ(ν) τό(ν)δε* Coll. 41, 2, which he no longer maintains (see p. 3), and *τὰ(ν) δίφατο(ν) δίμαο(ν) Παφίϳα(ν) γε* Coll. 69. This latter instance might possibly seem worthy of acceptance did we thereby gain a reading which commended itself in other respects, which is not the case. The individual words of the passage are several of them strange, and the sense which Deecke attaches to them (*Bezz. Beitr.*, vi., p. 146 f.) is forced and unnatural. Equally improbable is Hall's *ἀ(ν)θρώπω(ν) θεῶι* (*Jour. Am. Or. Soc.*, xi., p. 220), which he reads in place of Deecke's *ἄ(ν)θρωπε θεῶι* Coll. 68, 3.

4. In Coll. 126, 2, Deecke would even maintain the disappearance of final *ν* before a vowel in *δόμε(ν) Ἄδη*. This is also assumed by Hall (*Jour. Am. Or. Soc.*, xi., p. 216) in his reading *μὶ(ν) εὐξάμενος* in place of Deecke's *ὐευξάμενος* (*i.e.* *ἐπευξάμενος*; see § 17, 2) Coll. 45; further in *Κυνέμω(ν) ὁσεία* (*Jour. Am. Or. Soc.*, xi., p. 226) Coll. 87; *Ἀντιφάμω(ν) ὁ* (*ibid.*, p. 225) Coll. 83. But in none of these cases does any probability attach to the reading.

24.

Other Peculiarities.

1. Triple consonance occurs in *ἔξβασιν* Coll. 32. So also the preposition *ἐξ* is used invariably before initial consonants, *ἐξ τῶι* 60, 5, 11, 24; *ἐξ ταῖ* 60, 6, 24.

2. Doubled consonants are regularly written singly, *viz.* in *ἀνάσ(σ)ας* Coll. 33, 1; *ϝανάσ(σ)ας* 38, 4; 39, 2; 40; *Ἀμ(μ)ῦς* 61; *Ἄν(ν)ας* 147; *Ἀπόλ(λ)ωνι* 31, 3; 32, 2; 59, 3; 72, 2; 74, 2; 75, 3; 77; 78; 120, 2; *Γιλ(λ)ίκα(ς)* 120, 1; *Γιλ(λ)ίκαϝος* 29; *Πάσιπ(π)ος* 194; *Σίμ(μ)ιδος* (?) 60, 20; *μαμ(μ)οπάτωρ* (?) 85; *ϝανάσ(σ)ας* *Bezz. Beitr.*, xi., p. 315; p. 316; *Γιλ(λ)ίκαρι* *Berl. Phil. Woch.*, 1886, No. 41, ii.; doubtful is *ἀλ(λ)'* Coll. 68, 3; *Μανασ(σ)ῆς* *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

Instead of *Ἀπόλ(λ)ωνι* the principles of the Cyprian syllabary would admit *Ἀπλῶνι* (*cf.* Thessalian *Ἄπλουνι*, *i.e.* *Ἄπλωνι* Coll. 368; 372; *Ἄπλουνος* 345, 22). On the other

hand Cyprian *e·mi·* might possibly be taken for ἔμ(μ)ι, except for the evidence of ΚΑΡVΞ EMI the Greek text of the bilinguis Coll. 65 (*cf.* § 16).

This practice of writing doubled consonants singly is not peculiar to the Cyprian, but is found more or less frequently in most archaic inscriptions of every dialect. *Cf.* Syracusan Ἀπέλωνι Roehl, *Inscriptiones Graecae Antiquissimae*, 509; Megarian Ἀπόλωνι *ibid.*, 11; Pamphylian Ἀπέλωνα Coll. 1267, 30; τιμάϝεσα 1267, 6 and the list given in Meyer, *Gr. Gr.*,[2] § 287.

3. N-movable is found in a few late inscriptions, *viz.* ἔδωκεν Ἀψάσωμος *Berl. Phil. Woch.*, 1887, No. 12, col. 380; ἔδωκεν κάς and ὀνέθηκεν Μανασ(σ)ῆς *Berl. Phil. Woch.*, 1886, No. 42, col. 1323; in the two latter cases before an initial consonant.

4. The Cyprian syllabary has no character for the rough-breathing, which is generally supplied in accordance with the vulgar usage.

5. Initial πτ for π appears in πτόλις Coll. 60, 2, 4, 7, 15, 16, 27; πτόλιϳι 60, 6; πτόλιν 60, 1, all doubtless to be referred to Homeric influence; see § 20, 1.

6. Primitive ρσ is retained in ἔκερσε Coll. 32, 2, in accordance with the regular law. *Cf.* on the other hand Arcadian φθέραι (*i.e.* φθήραι?) Coll. 1222, 8.

7. Hall's Σίϳα (*Jour. Am. Or. Soc.*, xi., p. 225) for Θιϳά, *i.e.* θεά, his reading in Coll. 85, cannot be admitted. The change of θ to σ found in late Laconian (see Müllensiefen, *De Titulorum Laconicorum Dialecto*, p. 56) is not probable for Cyprian; and *goddess* in this dialect is expressed regularly by θεός (fem. as well as masc.), *e.g.* Coll. 60, 27.

8. κυμερῆναι, Coll. 68, 4, if correctly taken as a collateral form of *κυβερνῆναι, represents the same change of β to μ as that seen in κυμερνήτης for κυβερνήτης, Etymologicum Magnum, 543, 2, where it is referred to the Αἰολεῖς. Further concerning the form, see § 32, 12.

INFLECTIONS.

Declension.

25.

Stems in -ᾱ-.

1. On the gen. sing. in -αυ and -αο of proper names in -αϛ, see above, § 14, 4.

2. Feminine -ᾱ- stems have everywhere -ᾱϛ in the gen. sing., *e.g.* Ἀθάνας Coll. 60, 20; ἀνάσ(σ)ας 33, 1; εὐχωλᾶς 59, 3; ϝανάσ(σ)ας 38, 4; 39, 2; 40, 1; Ὀνασικύπρας 34, 1; τᾶς 1, 1 *et pass.*; Τιμοκύπρας 23, 1; Φιλοκύπρας 22, 1; Ἀριστοκύπρας *Berl. Phil. Woch.*, 1886, No. 41, vi. No trace is anywhere found of a fem. gen. in -αυ such as occurs in Arcadian (*e.g.* οἰκίαυ Coll. 1233, 3; ζαμίαυ 1222, 12, 25), where it is borrowed from the masculine. On the occasional omission of -ϛ in the gen. sing., see § 20, 1.

3. A peculiar gen. sing. of masc. -ᾱ- stems is found in Ἀμηνίϳᾱ Coll. 60, 18; Ὀνασιμάλᾱ 120, 1; Ἀριστίϳᾱ *Berl. Phil. Woch.*, 1886, No. 52, xx. The formation can hardly be Cyprian. It is possibly the result of Doric influence; *cf.* Cretan δικαστᾶ (for -ᾶο), *Inscription of Gortyna*, v. 35. This explanation at all events seems preferable to that of Deecke, who believes that Cyprian -ᾱο could sometimes lose its -ο and appear as -ᾱ.

4. Εὐϝαγόρω (*cf.* on the other hand Ὀνασαγόραυ Coll. 60, 1, 22) Coll. 153, 154, is referred by Meyer, *Gr. Gr.*,[2] § 345, to the influence of the Ionic dialect, but such Ionic gens. as Λαμψαγόρεω (Ἐφημερὶς Ἀρχαιολογική, 1884, p. 86) certainly do not speak for an Ionic Εὐϝαγόρω, although -ῶ (by contraction for -έω) does sometimes occur in Ionic, *e.g.* Ἀννικῶ for Ἀννικέω Roehl, *Inscriptiones Graecae Antiquissimae*, 381, c, 11.

Ἀμύ(ν)τω Coll. 41, which Meyer also explains in the same manner, is no longer maintained as a reading by Deecke; see p. 3.

5. The dat. sing. ends sometimes in -ᾱι (*i.e.* ᾳ); sometimes in -ᾱ. On the relation of these two endings to each other, see above, § 13, 3, a. The instances (with the immediate context) are as follows: *τᾶ Ἀθάνα τᾶι* Coll. 62; *ὐ τύχα* 74, 3; *σὺ(ν) τύχα* 120, 4; *τᾶ Ἀθάναι* 17, 2; *τᾶι βασιλῆϝος τᾶ* 60, 8, 17; *τᾶ Παφία*, the correct reading of Coll. 9, according to Hall (*Jour. Am. Or. Soc.*, xi., p. 212). An examination of these examples reveals the fact that the dative in -ᾱ is more usually found in those cases where it is accompanied by another dative of the full form in -ᾱι. *Cf.* the similiar use of -ω for -ωι; see § 26, 3.

Ahrens (*Philologus*, xxxv., p. 13 f.) considers the forms in -ᾱι as locative, when they are accompanied by a preposition of place. But the locative in Greek is not elsewhere used as such with prepositions, and there is no ground for recognizing it here.

6. The gen. plu. in -ᾶν (by contraction from -ᾱ́ων; *cf.* Homeric *θεᾱ́ων*, *ἀλφηστᾱ́ων*) occurs in *ἐπαγομενᾶν* Coll. 59, 2.

7. On the acc. plu. see § 15.

26.

Stems in -ο-.

1. The gen. sing. in -ω (for -οο by contraction; see § 14, 13) is frequent, *e.g.* *ἄλϝω* Coll. 60, 9, 18; *ἀργύρω* 60, 6, 13, 15, 17; *Τιμοδάμω* 23, 3.

2. A peculiar gen. sing. is found ending in -ων instead of -ω and occurring interchangeably with the latter. The instances are: *Ἀβιδμίλκων* Coll. 59, 3; *ἀργύρων* 60, 7, 25 (*cf.* *ἀργύρω* 60, 6, 15, *et pass.*); *Δρυμίων* 60, 19; *Ἐχετίμων* 38, 2; *Ἡδαλίων* 59, 1; *Θεοδώρων* 42; *Θεοτίμων* 42; *Κετίων* 59, 1; *μισθῶν* 60, 4, 5, 15; *Ὀναίων* 21, 1 (shown to be genitive by the recently discovered *Ὄναιός ἠμι Berl. Phil. Woch.*, 1886, No. 41, iii.); *Ὀνασικύπρων* Coll. 60, 2, 11, 30; *Ὀνασίλων* 60, 24; *πε(μ)φαμέρων* 59, 2; *ταλά(ν)των* 60, 7; *ὑχήρων* 60, 5, 15; *Φιλοκύπρων* 60, 1; *Νωμηνίων Berl. Phil. Woch.*, 1886, No. 42, col. 1323. *τῶν* in Coll. 60, 11 is not to be taken as gen. sing.

(as given by Deecke, *Index* to Coll. I., 1) but is rather the gen. plu. modifying the preceding *παίδων*. *Cf.* *τὸς παῖδας τὸς Ὀνασίλων* 60, 23.

The explanation of this genitive formation is exceedingly difficult. The view of Ahrens (*Philologus*, xxxv., 13) that an original formation in -ως has changed its -ς to -ν, for which Ahrens compares the Dor. ending -μες (*e.g.* *ὀμωμόκαμες*) by the side of the ordinary -μεν (*λέγομεν*) hardly needs refutation. The view first advanced by Deecke-Siegismund (Curtius' *Studien*, vii., p. 232) identifying this formation with that seen in the Arcadian genitive *τωνί* (Coll. 1222, 38), which they took as *των-ί*, is hardly correct, since Arcadian *ταν[ν]ί* in the same inscription line 53 points to a suffix -νι. The existence of this latter seems also to be confirmed by the Thessalian forms in -νε, *τό-νε* Coll. 345, 20, *et pass.*; *τά-νε* 345, 23, 45.

More plausible than Ahrens's view is that put forward by Deecke (*Bezz. Beitr.*, vi., p. 71). Deecke thinks the ending -ων arose by confounding the gen. sing. in -ω with the gen. pl. The ν in the latter (see § 23, 2) had an extremely weak sound, according to Deecke, so that the form apparently terminated in -ω, at least when followed by an initial consonant. Hence after the analogy of *ἀ(ν)θρώπω*, *i.e.* *-ω(ν)* as a pendant to *ἀ(ν)θρώπων* in the gen. plu., we find also in the gen. sing. *ἀ(ν)θρώπων* as a pendant to *ἀ(ν)θρώπω*. Deecke refers to the early Latin accusatives, *sēd*, *mēd*, *tēd*, which are correctly regarded by him as having developed from original *sē*, *mē*, *tē* after the analogy of the duplicate ablative forms *sēd*, *sē*; *tēd*, *tē*; *mēd*, *mē*. *Cf.* Osthoff, *Zur Geschichte des Perfects im Indogermanischen*, p. 128; Stolz, *Lateinische Grammatik*, § 90.

Against this view of Deecke's it must be urged that except in the few words already mentioned above (§ 23, 2, 3) final ν does not exhibit a tendency to vanish in Cyprian. Even before consonants it is regularly written, *e.g.* *παίδων* 60, 11; *κασιγνήτων* 70, 14. Hence the assumption is not justified that final ν in the gen. plu. was characterized by the "äusserste Lautschwäche" which Deecke claims, and the con-

clusion drawn from this assumption, that there existed two forms in the gen. plu., one in -ω and one in -ων, is therefore equally without foundation. In the absence of these duplicate forms of the gen. plu. it is difficult to see how this could have furnished the motive for the new formation.

Others, as Leskien (*Berichte der Sächsischen Gesellschaft der Wissenschaften*, 1884, p. 105) and Brugmann (*Griechische Grammatik*, § 94) suggest an independent ending here, *-m* or *-om*, which appears in Eccl. Slavonic. This is improbable. It is not likely that the Cyprian -ο- stems had two inherited genitive formations in regular use. The one would have almost inevitably supplanted the other in the ordinary language. Latin *familiās* beside *stellae* is a rarity; *deābus* and *filiābus* have a special reason for existing; whereas these two genitives in -ω and -ων exist side by side in the same words in the same inscription. It is therefore more reasonable to view the gen. sing. in -ων as a purely Cyprian development, the result of certain influences or associations which cannot as yet be determined.

3. The dat. sing. ends sometimes in -ωι, sometimes in -ω. On the relation of these two endings, see above, § 13, 3, c. An examination of the examples given there, reveals the fact that the ending -ω is used only in those cases where it is accompanied by another dative of the full form in -ωι, or by one ending in -αι or -ι. This fact tends to discredit Deecke's reading of Ἀ(ι)δη(ι) *μισαάτω(ι)* Coll. 126, 2 and *τῶ(ι) ἀ(ν)θρώπω(ι) ibid.* 3. Ahrens (*Philologus*, xxxv., p. 13 f.) considers the forms in -ωι as locatives wherever they are accompanied by a preposition, and writes them -οι. *Cf.* his view of the corresponding ending -ᾱι in case of the -ᾱ- stems; see above, § 25, 5.

4. On the acc. plu. in -ος, see above, § 15.

5. A locative sing. in -οῖ seems to occur in Παφοῖ Coll. 56, 1 and Ἡδαλιοῖ 62, 1; possibly also in Ἀμυκλοῖ 59, 2.

27.

Stems in -ι-.

πτόλις forms the dat. sing. πτόλιϳι (*i.e.* πτόλιι ; see § 18, 1, c) Coll. 60, 2. This represents the primitive formation. So also the contracted Ὀσίρι Coll. 72 ; 45, 2. See § 14, 12.

28.

Nouns in -εύς.

Deecke writes the oblique cases of these as -έϝος, -έϝι, *etc.*, or with disappearance of ϝ, as -έος, -έι, *etc.* He evidently assumes -έϝος to be the primitive formation. This makes a difficulty in explaining the long vowel in the penult of these words in other dialects, *e.g.* Bœotian Θεσπιεῖος (= Θεσπιῆος), Coll. 494, 16; Thessalian βασιλεῖος (ει = η) 345, 2, 11 ; Lesbian βασίλης 304, A, 13 ; Ionic Πλουτῆος cig. 2665, b ; Elean βασιλᾶες (for βασιλῆες ; ᾱ for η as frequent in Elean) Coll. 1152, 3 ; Att. βασιλέως, βασιλέᾱ, βασιλέᾱς (for βασιλῆος, βασιλῆα, βασιλῆας, by quantitative metathesis ; *cf.* Old Attic οἰκῆος, given in a law in Lysias 10, 19). Assuming -έϝος, *etc.*, as the original formation, the long vowel in these forms can be explained only by compensative lengthening. But certain as a few instances of this phenomenon seem to be, *e.g.* ᾱ̓ώς for *ἀϝώς (*cf.* Lesbian αὔως), yet the existence of a uniform law, by which a short vowel, standing before ϝ, is lengthened when ϝ disappears, cannot be established. Such words as νέος (for νέϝος), πλόος, ῥόος, κλέος, γλυκέος, βοός, *etc.*, in fact, are so numerous as to seem rather to disprove it.

It is better, therefore, to assume that the original stem of these nouns ended in -ηυ-, not -ευ-. The nom. sing. then must have originally ended in -ηύς. This developed regularly to -εύς ; *cf.* βοῦς for *βωῦς ; νᾶῦς for *νᾱυς (Ionic νηῦς is of secondary origin after νῆες) ; λόγοις for *λόγωις (*cf.* Skrt. *gatāís*). See Spitzer, *Laut. Ark. Dial.*, p. 30 ; *cf.* Meyer, *Gr. Gr.*,[2] § 298.

The oblique cases were originally *-ῆϝος, -ῆϝι, etc.*, and Deecke is therefore wrong in writing *βασιλέϝος*, Κετιέϝες. The Cyprian is the only dialect which has preserved the primitive formation intact. All other dialects have dropped *ϝ*. The instances of the formation are *βασιλῆϝος* Coll. 39, 1; 46; 47; 59, 1; 60, 6, 8, 17; 153; 154; 176; 177; 178; 179; Ἠδαλιῆϝες 60, 2; *ἱερῆϝος* 1, 1; Κετιῆϝες 60, 1.

As to the Cyprian forms which appear without the *ϝ* (see § 17, 1), they must be considered as retaining *η*, if the theory advanced below concerning the origin of *ἱερής* be correct; see § 29, 2. The instances are: *βασιλῆος* Coll. 17, 1; 38, 1; 40, 2; 154, 155 a, b; 156; 193; *ἱερῆος* 38, 3; *βασιλῆος* *Bezz. Beitr.*, xi., p. 316.

29.

Other Peculiarities of Declension.

1. Peculiar are the accusatives *ἰjατῆραν* (= *ἰjατῆρα*) Coll. 60, 3; *ἀ(ν)δριjά(ν)ταν* 59, 2; *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

Brugmann (*Grundriss der Vergleichenden Grammatik*, I., p. 198, and *Gr. Gr.*, § 77) suggests that possibly the *-αν* of these forms is to be regarded as the development of *-m̥m: i.e.* the primitive ending *-m* developed before it the vocalic *m̥*, just as in Sanskrit **pádm* became **pádm̥m* whence *pádam*. *Cf.* also Greek *πότνιαν* (whence the secondary nom. *πότνια* instead of **πότνις*; *cf.* Skrt. *pátnī*) from **πότνιᾱm̥m*. It seems much more natural, however, in view of the acc. sing. *μέ-ν, μί-ν* (for *μέ*, see § 31, 1) to regard the *ν* as borrowed from the accusative of the *-ᾱ-* and *-o-* stems, as if to mark more closely the accusative character of the form. *Cf.* Thessalian *κιόναν* (from *κιών*) Coll. 1332, 40. The late forms *νύκτα-ν* and *ἄνδρα-ν* which Brugmann cites admit of no other explanation. An analogous phenomenon is seen in the verb where a primitive 3d plu. imperative *γραψάτω* first inserts a pluralizing *ν*, producing *γραψάντω*, and then adds yet another plural sign in *γραψάντων*. *Cf.* also Attic *μισθωσάντωσαν* CIA. ii., 600, 45.

ϝεικόνα Coll. 76, 2, follows the ordinary formation.

ἀτελήν Coll. 60, 10, does not belong here; see below, 8.

2. The nom. sing. *ἰ̓ερής* Coll. 33, 1 is a collateral form of *ἰ̓ερεύς* (*i.e.* *ἱερεύς*), formed probably by appending the regular nom. ending -ς to *ἱερη-*, which appeared as the stem in those forms of *ἰ̓ερεύς* which in course of time came to drop the *ϝ* (see § 17, 1), as, *e.g.*, *ἰ̓ερῆ-ος*, *ἰ̓ερῆ-ι*. This new formation occurs also in Arcadian (*e.g.* *γραφής* Coll. 1230, 7; *ἱερής* 1231, B, *et pass.*), where, however, it must have originated independently, if the above explanation of the Cyprian form is correct.

3. Proper names in *-κλέϝης* (*e.g.* *Νικοκλέϝης* Coll. 40, 1) formed the gen. sing. regularly in *-κλέϝεος* (*i.e.* *-κλέϝε(σ)ος*). This formation is seen in *Τιμοκλέϝεος* Coll. 36; 64. By disappearance of the *ϝ* (see § 17, 1) and hyphæresis of the second ε (see § 14, 7) we get the forms in *-έος*, *viz.* *Τιμοκλέος* 35 and *Θεοκλέος* 126, 1. *Νικοκλέϝος* 179 cannot be the legitimate offspring of *Νικοκλέϝεος* (*cf.* *Τιμοκλέϝεος*), since ε before ο does not disappear. I therefore prefer to regard *Νικοκλέϝος* not as a form historically intermediate between *Νικοκλέϝεος* and *Νικοκλέος*, but as historically subsequent to both, and a compromise between the two. *Cf.* German *doppelt*, which has resulted from the combination of *doppel* and *gedoppelt*. See Wheeler, *Analogy and the Scope of its Application in Language*, p. 8.

4. On the nom. of proper names in *-κράτης* and *-κρέτης*, gen. *-κράτεος* and *-κρέτεος*, see above, § 3, 1.

5. On *Εὐϝά(ν)θεϝος* as possible gen. of *Εὐϝα(ν)θης*, see § 17, 3.

6. *χάρι* and *δάρι* Meister's reading of Coll. 41 (*Berl. Phil. Woch.*, 1887, No. 52, col. 1644) for *χάριτι* and *δόρατι* are quite uncertain.

7. *Γιλ(λ)ίκαϝος* Coll. 29; *Γιλ(λ)ίκαϝι* *Berl. Phil. Woch.*, 1886, No. 41, ii.; *Σαμᾶϝος* *Berl. Phil. Woch.*, 1887, No. 12, col. 380, are Phœnician names (see Deecke on the last form) from nominatives *Γιλ(λ)ίκας* (*cf.* *Γιλ(λ)ίκα(ς)* Coll. 120) and *Σαμᾶς*.

8. *ἀτελήν* (acc. sing. of *ἀτελής*) Coll. 60, 10, is formed

after the analogy of masculine -ᾱ- stems (-ᾱς : -ᾱν : : -ης : -ην). *Cf.* Lesbian δαμοτέλην Coll. 304, A, 44. Meister (*Griechische Dialekte*, I., p. 154 f.). See above, § 14, 6; 29, 1.

30.

Adjectives.

The form νεϝοστάτας Coll. 59, 2, is taken by Ahrens (*Philologus*, xxxv.) as for νεϝοτάτας, *i.e.* superlative of νέϝος (Att. νέος). The ending -στατος in that case must be explained as borrowed from the superlative of -εσ- stems, *e.g.* ἀσφαλέστατος. This occurs also in other dialects, *e.g.* αἰδοιέστατος (superlative of αἰδοῖος) Pindar, *Ol.* iii. 76; ἀφθονέστερος Plato, *Rep.* 460, B, where the adaptation to the -εσ- stems is more complete than in case of νεόστατος.

31.

Pronouns.

1. The acc. sing. μέν for μέ occurs in Coll. 71, the ν apparently being added on the same principle as in ἰϳατῆραν for ἰϳατῆρα; see § 29, 1.

2. Another form of the acc. sing. is μί Coll. 1, 2; 2, 2. This form, which is for μίν with omitted final nasal (see § 23, 2, 5), must have developed from μέν, just as ἰν from ἐν; see above, § 7, 2. μέ also occurs Coll. 15, 2, and (elided) 126, 1. Voigt reads μὶν ἔθηκε in Coll. 45, 3; but see § 9, 4.

3. ϝοῖ occurs as a simple pronoun of the 3d person without reflexive force (= αὐτῷ) in Coll. 60, 29; 59, 3.

4. Deecke claims τό(ν) as demonstrative in τὸ(ν) δόμε(ν) Ἄδη 126, 2, but the whole passage is extremely uncertain.

The nom. pl. masc. of the article is οἱ after the analogy of the singular ὁ. The primitive nom. pl. τοί has disappeared as in Attic and elsewhere.

5. The article occurs as relative several times, *viz.* τόν Coll. 60, 21; τάς 71; possibly also ὅ, 60, 12, 25, unless this

be for ὅς with omitted final -ς, according to § 20, 1. τά, which Deecke reads in 68, 4, is doubtful; *cf.* p. 2.

6. On σὶς for τὶς Coll. 60, 10, 23, see § 22, 2. On ὅπισις (= ὅστις), see § 21, 3; 22, 2.

7. Deecke claims σὶ(ς) in relative sense in Coll. 126, 1, comparing Thessalian κίς κε in τὰν ὀνάλαν, κίσκε γινύειτει (= ἥτις ἂν γίγνηται) Coll. 345, 22. But the reading of the Cyprian form is quite uncertain. *Cf.* § 20, 1 *ad fin.*

8. A demonstrative τόννυ seems to occur in the bilingual in *Berl. Phil. Woch.*, 1886, No. 42, col. 1323.

9. ϝεαυτῶ, Meister's conjecture in his new reading of Coll. 42 (*Berl. Phil. Woch.*, 1887, No. 52, col. 1644), is exceedingly improbable.

32.

Conjugation.

1. In Coll. 60, 1, Deecke writes κατεϝόρκων from an assumed present κατα-ϝορκόω, 'besiege' (*cf.* πολιορκέω for πολι-ϝορκέω). Hence κατεϝόρκων is the regular contracted 3d pl. imperfect ind. for *κατεϝόρκοον. Ahrens, however (*Philologus*, xxxv., p. 34), prefers to write κατέϝορκον. This he refers to the same present, καταϝορκόω, but thinks that this verb has followed in Cyprian the same tendency as the contract verbs in Arcadian (*cf.* Arcadian ζαμιόντω, imperative from ζαμιόω Coll. 1222, 17; ζαμιόντες 1222, 50), and has passed over into the -μι class. But the Arcadian does not follow this tendency invariably, *e.g.* ζαμιώσθω (contract), not ζαμιό-σθω, Coll. 1222, 28; so that Deecke's reading seems altogether safer.

2. ἦς is given by Sayce (*Berl. Phil. Woch.*, 1884, No. 21), imperfect ind. 3d sing. from ἠμί. He gives only this form, apart from any context, and without reference to the certainty of the text. If correct it furnishes an interesting parallel to Arcadian ἦς (for *ἔ-εσ-τ, the primitive formation) Coll. 1222, 37. *Cf.* Bœotian παρεῖς (*i.e.* -ῆς) Coll. 500, 8.

3. ἐπισταῖς, Deecke's reading in Coll. 68, 3, would, if correct, be for ἐπισταίης, aor. opt., with the mode-sign of the

plural, ῑ, instead of that of the singular. But frequent as is the opposite phenomenon, that of -ιη- instead of ῑ in the dual and plural (*e.g.* σταίητον, σταίημεν), yet instances of the reverse are not elsewhere found, and we should be slow to credit one in the present case, the more so since the sense which Deecke gives this word (*Bezz. Beitr.*, vi., p. 78, "nicht möchtest du dich über die Gottheit stellen" (μὴ . . . ἐπισταῖς . . . θεῶι), does not belong to ἐφίστημι, which may have the sense of 'to be in command of,' but not that of 'to hold oneself superior to.'

4. κατέθιϳαν Coll. 60, 27, is the plural of the unthematic aor. ind. of κατατίθημι. The root syllable appears as θι instead of θε- according to § 7, 1; on ϳ see § 18, 1, a. The ending is -αν. The normal formation would have been *κατέθεντ, *i.e.* κατέθεν. *Cf.* Arcadian ἀνέθεν Coll. 1229; 1230. The ending -αν has been borrowed from consonant stems, where the primitive ending -ντ became -ᾱτ and so developed regularly as -αν(τ), *e.g.* ἔδωκαν, for *ἐδωκᾱ̃τ; ἔλυσαν for *ἐλυσᾱ̃τ (see Meyer, *Gr. Gr.*,[2] § 530). Identical with Cyprian κατέθιϳαν are Bœotian ἀνέθε-αν and ἀνέθεϱ-αν Coll. 855; 571, 2.

5. κατέθισαν (Att. κατέθεσαν) Coll. 20, 2, ought regularly to appear as κατέθεσαν. The ι is to be explained as borrowed from the formation just mentioned, κατέθιϳαν. The termination is of secondary origin, as in case of the Att. κατέθεσαν, being borrowed from the sigmatic aor., *e.g.* ἔλυσαν, where -σαν was felt as ending. Voigt's suspicion of this form (*Bezz. Beitr.*, ix., p. 165) I am unable to share.

6. On the aor. ὡρίσετυ Coll. 126, 1 see § 3, 4.

7. On the ending η for ῃ in the 3d sing. of the aor. subjunctive, see § 12, 3, b.

8. In Coll. 60, 26, note, Deecke takes ἰναλαλισμένα as perfect pass. participle from ἰν-αλίζω (*i.e.* ἐν and ἁλιζω, from ἅλος, Att. ἧλος 'nail') hence 'nailed up,' 'suspended by a nail.' But this assumption of the so-called Attic reduplication in a verb beginning with a long vowel is unwarranted. Deecke and Siegismund's earlier reading in Curtius' *Studien*, vii., p. 255, ἰναλ(λ)αλισμένα (ϝέπιϳα) "diese ausgetauschten

Worte" (from *ἰν-αλ(λ)αλίζω*) still seems preferable, notwithstanding *αἴλων* in 60, 14.

9. *ἐρερᾱμένα* is Deecke's reading in Coll. 68, 2. He explains it (*Bezz. Beitr.*, vi., p. 79) as perfect participle of *ἔρᾰμαι*, comparing *ἀλᾰ́λημαι*, *ἀλᾰλύκτημαι* for the reduplication. But the lengthening of *ᾰ* to *ᾱ* is unaccountable, and the use of so strong a word as *ἔραμαι* in the sense of "liebes," as Deecke takes it, would be remarkable. Homeric *ἦρα* in *ἦρα φέρειν*, which Deecke compares, probably has no etymological connection with *ἔραμαι*.

10. An infinitive ending *-ϝέναι* occurs in *δοϝέναι* (from *δίδωμι*) Coll. 60, 5, 15. *Cf.* Skrt. *dā-váne*. This ending is probably the original of that appearing in Attic *δοῦναι* (for **δο(ϝ)έναι*, *θεῖναι* (for **θε-(ϝ)έναι*). *δόμε(ν)* read by Deecke in Coll. 126, 2, is uncertain; § 23, 4.

11. The ending of the present infinitive of *-ω*-verbs is uncertain. Whether we should transcribe this as *-εν* or *-ην* cannot be determined. It is perhaps safest to follow the closely related Arcadian (*cf.* Arcadian *ἰμφαῖνεν* Coll. 1222, 24; *ὑπάρχεν* 1222, 53) and write *ἔχεν* in Cyprian in Coll. 60, 10, 22, where Deecke gives *ἔχην*. If we read *ἔχεν*, it is best to assume an independent infinitive suffix *-ν*, *i.e.* *ἔχ-ε-ν*, as is done by Spitzer (*Laut. Ark. Dial.*, p. 56) and Brugmann (*Griechische Grammatik*, § 146, 5) in case of the Arcadian and Doric forms.

12. Whether *κυμερῆναι*, Deecke's reading in Coll. 68, 4, may be a Cyprian infinitive, like the Homeric *φορῆναι*, from an assumed **κυμερέω* for **κυμεράω* — *i.e.* *κυβερνάω* (*cf.* *δαμάω* beside *δαμνάω*) as taken by Deecke (*Bezz. Beitr.*, vi., p. 80) seems altogether doubtful; see § 24, 8.

13. The imperative *πῖθι* is found in Coll. 135.

14. *εὖ ποτε ἔϝρεξα* Coll. 71 is not properly a case of tmesis, as Deecke (*Bezz. Beitr.*, vi., p. 152) takes it, since a form *εὐέϝρεξα* is an impossibility; but *ἐξ ὀρύξη* Coll. 60, 12 (twice), 24, 25, has in each of the four instances a divisor between the preposition and the verb.

15. The participles *ἰό(ν)τα* Coll. 60, 23, and *ἐπιό(ν)τα* 60,

9, 19, 22, *i.e.* *ἐόντα ἐπεόντα* (see § 7, 1 and *cf.* Ion. *ἐών, ἐόντος*) represent the thematic formation from the strong form of the root *ἐσ-*, in place of the primitive *σ̥ητ-*, which has everywhere disappeared. *Cf.* Meyer, *Gr. Gr.*[2], § 601.

33.

Prepositions.

1. *ἀπύ* (*i.e.* *ἀπό*; see § 9, 2) occurs in Cyprian with the dative only, *viz.* *ἀπὺ ταῖ ζαῖ* Coll. 60, 8, 17; *ἀφ' ὦι* 59, 3.

2. *ἐξ* is used before consonants as well as before vowels (see § 24, 1), and like *ἀπύ* governs the dative only. The examples are *ἐξ τῶι χώρωι* Coll. 60, 11; *ἐξ ταῖ πτόλιϝι* 60, 6; *ἐξ τῶι ϝοίκωι* 60, 5; *ἐξ ταῖ ζαῖ* 60, 24; *ἐξ τῶι καπωι* 60, 24. The form *ἐκ* does not occur.

3. *πός*. Reference has already been made above to the view of Baunack and Meister (see § 20, 3), according to which *πός* is a phonetic development from *ποτί*. The grounds for rejecting this view were also stated in the same connection. *Cf.* also Bechtel, *Bezz. Beitr.*, x., p. 287.

πός and *ποτί* are really independent of each other, being different formations from the same theme, **πότ*. The former is for **πότ-ς*, where *-ς* is the same suffix as seen in *ἐξ* (*i.e.* *ἐκ-ς*), and *ἀψ-* (*i.e.* *ἀπ-ς-*), probably the weak form of the gen. suffix *-ες, -ος* as seen in *δεσπότης* for *δεμ-σ-πότης*, Lat. *fructū-s* (*cf.* J. Strachan, *Abstufung in Case-Endings, Bezz. Beitr.*, xiv., p. 174). *ποτ-ί*, on the other hand, is a locative formation. With the relation existing between *πός* and *ποτ-ί* compare also that between *πρός* (*i.e.* **πρότ-ς*) and *προτ-ί*; *εἰς* (*i.e.* **ἐν-ς*) and *ἐν-ί*.

4. *ὑ* occurs in Coll. 74, 3, in the sense of *ἐπί*; also in composition in *ὑευξάμενος* (see § 17, 2 *ad fin.*) 45, 2; and *ὑχήρων* (*i.e.* *ἐπιχείρου*; see Ahrens, *Philologus*, xxxv., p. 30 ff.) 60, 5, 15.

5. In Coll. 60, 10, 22, 28 we also find the peculiar form *ὕϝαις*, which is plausibly explained by Baunack (*Inschrift von*

Gortyn, p. 44) as follows. From the preposition *ὑ* already mentioned (see **4**, above) was first formed *ὕ-αι*, the αι being the same suffix as seen in the Homeric *ὑπ-αί* and *παρ-αί* (*cf.* *ὑπαὶ πόδα νείατον* B 824; *παραὶ ποσίν* *o* 280), *etc.* This *ὕαι* appears in Cyprian as *ὕϝαι-ς*. The *ϝ* is parasitic (see § 17, 2). The **-ς** is the same suffix as that already mentioned in connection with *πός* and *πρός* (see above, **3**). *Cf.* also *μέχρι-ς* beside *μέχρι*; *ἀμφί-ς* beside *ἀμφί*; Elean *ἄνευ-ς* beside *ἄνευ* Coll. 1157.

The incorrectness of Ahrens' view, which connects *ὕϝαις* with the Skrt. adverbs in *-āis*, has already been shown above, § 11, 2.

6. *ἰ(ν)* (see § 23, 2, 4) governs the acc. as well as the dat., *e.g.* *ἰ(ν)* *τὰ(ν)* *θιόν* Coll. 60, 27; *ἰ(ν)* *τύχαι* 59, 4, and frequently.

34.

Conjunctions.

1. On *ἠ* 'if' see § 14, 6. This is probably from the same root as the Doric *αἰ* and Att. *εἰ*, though the relations of the three forms to each other are obscure. Baunack (*Inschrift von Gortyn*, p. 50) assumes a stem *svo-* to which he refers *εἰ* (for **σϝεῖ*) as locative (*cf.* *οἴκει*) and *ἠ* (*i.e.* **σϝῆ*) as instrumental; also a stem *svā-* to which he refers *αἰ* (for **σϝαῖ*) as locative; *cf.* *χαμαί*.

2. *κάς* 'and' sometimes loses its final **-ς** and appears as *κά*, as already explained above; see § 20, 1. The relation of these forms to *καί* of the other dialects is obscure. Baunack (*Inschrift von Gortyn*, p. 44) thinks that *καί* was the original form, which before vowels became *και̯*, then *κά*, and that this *κά* was extended to *κά-ς* by the addition of **-ς**, as in case of *μέχρι-ς* for *μέχρι*, *etc.* (see § 33, 5). But no traces of an antevocalic form *κά* are elsewhere found, and the addition of **-ς**, while frequent in adverbs and prepositions, is hardly to be assumed for a pure conjunction like *καί*. The explanation of *κάς* and *κά* is further complicated by the existence of the form *κατ'* Coll. 59, 1. Deecke (Index to Coll. I., p. 77)

suggests that the elided vowel is ι, *i.e.* κάτι. Hall (*Proceedings Am. Or. Soc.*, x., p. clviii.) suggests κά τε (*i.e.* καί τε) in the sense of the usual τε καί; but this is impossible.

Assuming with Deecke that κάτι was the full form of this word we are not justified in assuming that this developed to *κάσι and then to κάς (before vowels), since in that event we should not find κάτι and κάς side by side. Nor can we explain καί as developed from κάτι through the medium of *κάσι, since the secondary σ of the latter form would not have disappeared, but would have remained.

3. ἰδέ occurs Coll. 60, 12, 24, used like the apodotic δέ to introduce the conclusion of a conditional sentence. In 60, 26 it has the force of the simple δέ.

4. ἴ 'and' is found Coll. 60, 24.

5. πᾶι Coll. 60, 4; 60, 12; 71 is most naturally explained like the Attic πῃ as an instrumental which has assumed the ι secondarily. Meyer, *Gr. Gr.*,[2] § 388.

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Vol. I. *JULY, 1890.* No. 3.

I. — *On the Determination of Specific Heat and of Latent Heat of Vaporization with the Vapor Calorimeter.*

By HAROLD N. ALLEN.

INTRODUCTION.

Joly,[1] in 1886, and Bunsen,[2] shortly afterwards, described two similar pieces of apparatus intended to determine the specific heat of substances by means of the condensation of water vapor upon them. The name given by Bunsen to this apparatus and adopted here is *vapor calorimeter.* Bunsen also intended his instrument to be used in the determination of the latent heat of vaporization of various liquids, and it is the object of the present paper to describe experiments testing the steam or vapor calorimeter in this direction. A rough experimental instrument was first constructed, combining to a certain extent the principles of Joly and of Bunsen, and this proving fairly satisfactory, an apparatus was made by a local tinman, which, while much less expensive than Joly's final form, worked in a very satisfactory manner.

A number of determinations of *specific heat* were made with both instruments, to which however no further im-

[1] J. Joly (Dublin), Proc. Roy. Soc., Nov. 1886.

[2] R. Bunsen, Wied. Ann. d. Chem. u. d. Phys., Band XXXI., 1887.

portance is to be attached than as showing the short time needed for heating the body experimented on to 100° C., and the very slow rate at which the weight of the substance and condensed water changes after that time. Experiments on the latent heat of evaporation of alcohol remained without definite result owing to water contained in it, but a certain amount of success was obtained with bisulphide of carbon, though here too the same difficulty was encountered.

I have to thank Professor F. Kohlrausch, Director of the Physical Institute in Strassburg, for the great help given in the course of these experiments, and the kindness he has uniformly shown me.

THEORY OF THE METHOD.

Suppose that a number of substances, with weights W_1, W_2, W_3, etc., and specific heats S_1, S_2, S_3, etc., and with the common temperature $t°$, are plunged into the saturated vapor of a liquid, the latent heat of vaporization of which is λ, and the temperature T. Then a certain weight w of the liquid will be condensed such that the heat given up in condensation is equal to that required to raise the temperature of all the bodies from $t°$ to $T°$.

$$W\lambda = (W_1S_1 + W_2S_2 + W_3S_3 + \text{etc.})\ (T - t).$$

This affords a means of determining the specific heat of one of the bodies if the specific heats of the others and the latent heat λ are known, or of finding λ if the specific heats are known. The great difficulty is in the determination of w, — the weight of the condensed liquid, — as a removal of the substances from the vapor causes in general instant evaporation.

Both Bunsen and Joly adopt the expedient of weighing the whole suspended in steam, the difference between the methods being that while Bunsen plunges substance and carrier into a vessel of steam, Joly surrounds them with steam as quickly as possible by suddenly passing it into the vessel in which they hang.

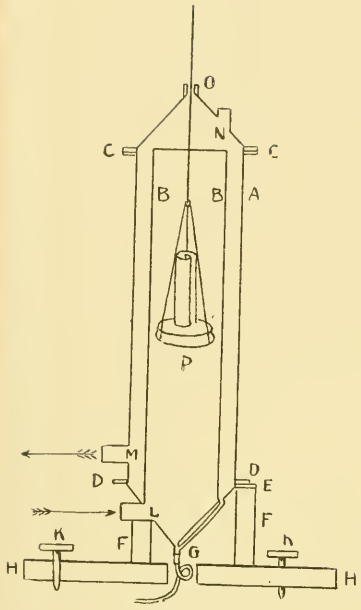

FIG. 1.

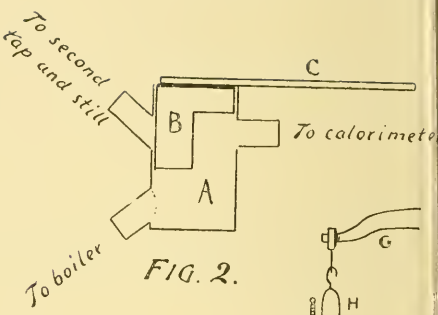

FIG. 2.

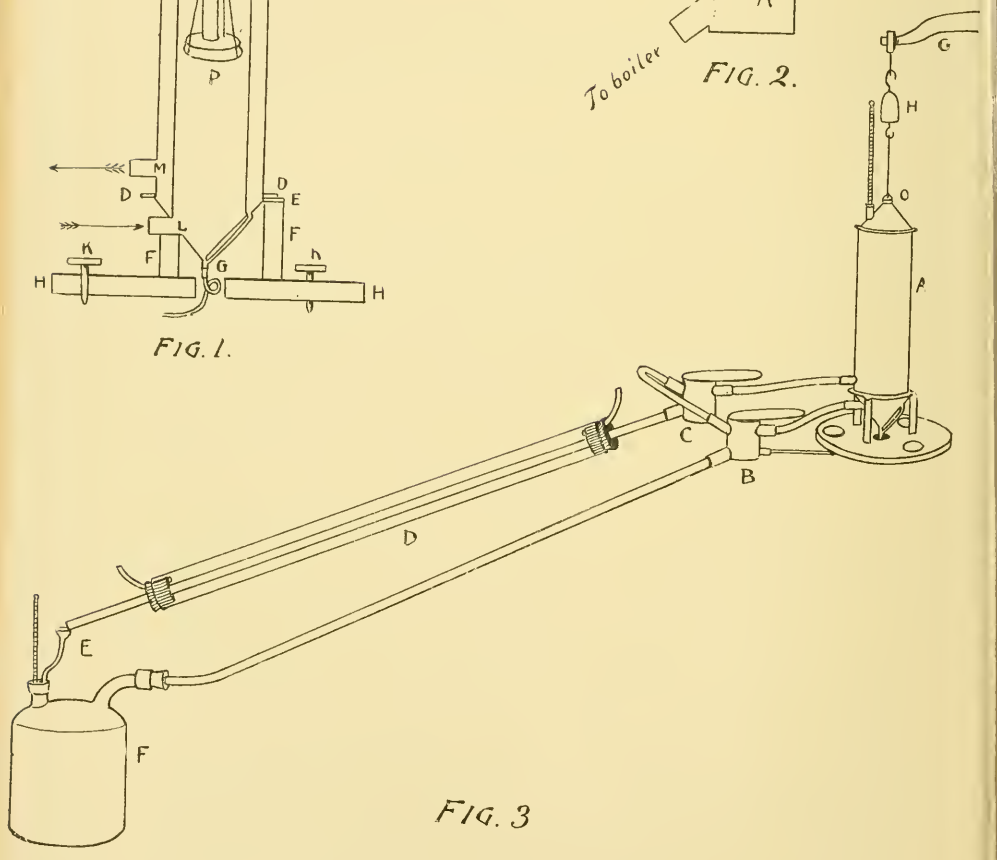

FIG. 3

DESCRIPTION OF APPARATUS.

The final apparatus used was constructed as follows: AA (Fig. 1) is a cylinder of sheet brass, seven centimeters in diameter and twenty-two in height. At the bottom of this is soldered the ring D, turned out of sheet brass, to which a cone of thin brass is fixed, carrying the tubulure L, the small pipes G, and the inner cylinder of thin brass BB. At the top of A is soldered the lower one of two flat rings of brass C, which are ground together and held in contact by means of a bayonet joint. To the upper of these rings is soldered a brass cone bearing the tubulures N and O. To the ring D are soldered three brass ears E, to which the wooden pillars F are screwed. These are fixed to the round wooden base H provided with levelling-screws K.

The tubulure O is filled with plaster of paris, through which a vertical hole of about two millimeters' diameter is bored. A fine platinum wire, suspended from a lead counterpoise, which takes the place of one scale-pan of a balance, passes through this hole and carries at its lower end the body to be experimented on. Under this hangs a small cup of platinum or brass to collect the condensed liquid. In some cases two of these are used, one underneath the other, to catch any possible droppings.

The instrument in this form is not quite as convenient as the second one described by Joly, but its construction is much easier, and it is probably lighter, and therefore more quickly heated by the steam. It is much higher than is necessary for ordinary purposes, having been designed for a special use. If the cylinder A were half its actual length, the apparatus would be much more compact and would probably work better.

Figure 3 shows the complete apparatus with arrangements for passing any desired quantity of vapor through the calorimeter and returning the condensed vapor to the boiler.

From the boiler F the vapor passes to the tap B, the construction of which is shown in Figure 2. It consists

of a short piece of wide brass tubing A, the lower end being closed by a brass disc, while short brass tubulures are soldered over three holes in the sides. B is a piece of brass tubing ground into A, and having one-half of the lower part cut away as shown. The top is closed by a brass disc, to which the handle C is fixed.

It will be seen that in the position indicated there is free communication between the boiler and calorimeter in the tap B, and between the calorimeter and still in C, which is constructed on exactly the same plan. If both taps are turned through 180°, the vapor passes direct from B to C, and so to the still, while by turning through a less angle part can be made to pass through the calorimeter, the rest going directly to the still. In this way the former amount can be regulated.

METHOD OF DETERMINING SPECIFIC HEAT.

The order of an experiment was as follows : —

The upper cone was removed, the wire passed through the small hole in the plaster of paris, the carrier and substance P hooked on, the cone set in place on the instrument, and the upper end of the wire hooked to the arm of the balance. During this operation the wire was kept from rubbing against the plaster by means of two small pieces of brass, which filled the hole, leaving room for the wire in grooves on the surfaces where they met. The balance, the pillar of which was mounted on a tripod with levelling-screws, was then shifted until the wire hung in the centre of the hole; the two halves of a wooden case surrounding the calorimeter were pushed together, openings being left for the wire, the thermometer, the steam pipe, and the escape pipe. The instrument was then left for a long time (best over night) to take a uniform temperature.

The weight of substance and carrier in air having been determined, and the thermometer in N read, removed, and replaced by a cork, steam was admitted suddenly at L by thrusting into the tubulure a tight-fitting brass tube, con-

nected by means of rubber tubing with a steam boiler. The steam passed up through B, down between B and A, and out through M. After the first minute the flow of steam was slackened so that very little came out either at M or O.

In the first experiments M was connected with a long glass tube, which carried the waste steam to some distance from the instrument and balance. The steam or vapor escaping through O was removed by the method adopted by Bunsen; a tube was set with its opening at right angles to O, and led to an iron chimney in which a gas flame was kept burning. In this way an air current was formed, which prevented anything from rising to condense on the balance above. After about five minutes the weight of the carrier and substance with the water condensed was determined, and this was repeated at intervals of five minutes for some time.

It was found that with a good conducting substance the weight found at the end of ten minutes could be taken as correct, as after this there was little increase, and that probably due to condensation on the suspending wire.

The regulation of the flow of steam was attended with some difficulty: the least irregularity caused in the end an increase of weight. Where the regulation was attempted, as at first, by turning down the flame under the boiler, the blowing aside of the small flame during a few seconds spoiled several experiments.

With the complete apparatus, provided with taps and condenser, this difficulty was not felt, as the gas was full on the whole time.

RESULTS.

The following are the results obtained with the first large tinned iron instrument: —

Specific Heat of Brass and Iron.

Material.	Weight.	Result.
Brass	105 grm.	$S = 0.0922$
Brass	105 grm.	$S = 0.0938$
Brass	105 grm.	$S = 0.0932$
Iron	123.05 grm.	$S = 0.1144$
Iron	123.05 grm.	$S = 0.1148$

Latent Heat of Vaporization of Alcohol.

Material.	Weight.	Result.
Brass in alc. vapor	135.33	$\lambda = 252$
Brass in alc. vapor	46.43	$\lambda = 232$

The following results were obtained with the smaller brass apparatus: —

Specific Heats.

Material.	Weight.	Result.
Copper	40.28	$S = 0.093$
Copper	40.28	$S = 0.091$
Quartz	28.68	$S = 0.1894$
Quartz	28.68	$S = 0.1933$
Quartz	28.68	$S = 0.1902$
Quartz	28.68	$S = 0.1929$
* Quartz	28.68	$S = 0.1902$
* Quartz	28.68	$S = 0.1908$
Platinum	23.95	$S = 0.0315$

In the two experiments with quartz marked * a very fine platinum wire was used for suspension in place of the coarser one used before, and it was found that this had a very large influence on the constancy of the balance. In the determination of the specific heat of platinum it was found that the quantity taken was not enough to give an accurate result. The specific heat of platinum is so low that the quantity of water condensed was small.

LATENT HEAT OF VAPORIZATION OF ALCOHOL.

MATERIAL.	WEIGHT.	RESULT.
Copper in alcohol	45	$\lambda = 656.4$
Copper in alcohol	45	$\lambda = 387$
Platinum in alcohol	40	$\lambda = 610$

These curious results seem to be due to varying amounts of water mixed with the alcohol used. In the first case λ is actually greater than in the case of water vapor. It is, however, possible that some of the condensed alcohol may have dropped off, though this is hardly likely in the last case where the quantity condensed was small. This substance was not further investigated.

LATENT HEAT OF VAPORIZATION OF CARBON BISULPHIDE.

A large number of experiments were made with this compound, several different bodies being tried to condense the vapor. The best results were obtained with a plate of nickel, weighing 24.10 grams, which was rolled into a spiral and suspended over the lid of a platinum crucible, a shallow cup of platinum foil being hung beneath this. The whole weight of platinum was 6.98. This combination under the circumstances of the experiments condensed more than 0.8 grams of carbon bisulphide.

In an experiment made July 29, 1889, the initial temperature of the calorimeter was 18.9, while the temperature after the admission of vapor was 46.4. The thermometer used was compared with a standard thermometer which had been corrected at the Reichs-institut.

The apparent increase of weight was 0.929 grams, and to this must be added a correction of 0.0083 grams due to reduction of the weights to vacuo.

The equation

$$(W_1S_1 + W_2S_2)\ (T - t) = w\lambda$$

becomes

$$(24.10 + 0.10916 + 6.98 \times 0.0323)\ 27.5 = 0.9373\lambda,$$

the number 0.10916 (Regnault) being taken as the specific heat of nickel, and 0.0323 (Violle) as that of platinum. Thus this experiment gives

$$\lambda = 83.79.$$

The following is a list of all the successful experiments made with the spirally rolled nickel, two being left out which failed on account of the gradual increase of impurity in the carbon bisulphide, and one in which the draught was not at work. The carbon bisulphide used in the last three experiments was carefully freed from water by distillation over phosphorous pentoxide. Admixture of water or of some

other impurity, perhaps sulphur, seems to lower the latent heat, a value as low as 76 having been obtained with impure substance.

w.	$T-t$.	λ.
0.8752	26.05	85.0
0.8386	25.05	85.30
0.8341	24.6	84.22
0.9143	27.0	84.33
0.9814	28.65	83.36
0.9373	27.5	83.79
		Mean, 84.33

CORRECTION TO VACUUM.

Let n be the true weight of the nickel,
" p " " " " " platinum,
" c " " " " " carbon bisulphide.

The volume of the nickel and platinum at the air temperature may be taken as

$$\frac{24}{8.9}+\frac{6.98}{21.5}=3.03 \text{ cc.};$$

that of the brass weights as

$$\frac{31.06}{8.4}=3.69 \text{ cc.}$$

The actual weight of the nickel and platinum is therefore

$$n+p=31.06-(3.69-3.03)\,0.001213,$$

0.001213 being the density of air at mean temperature and normal pressure. The volume of the nickel and platinum at 46° has been assumed as 3.33 cc., that of 0.929 grams of CS_2 is 0.76 cc., if the density is calculated from Hirn's formula for the expansion of this liquid. The volume of the platinum weights added in the other scale-pan is 0.04 cc.

Thus on one side the nickel, platinum, and carbon bisulphide displace 4.07 cc. of carbon bisulphide vapor, while on the other 3.69 + 0.04 cc. of air are displaced.

Then

$$n + p + c + 4.07 \times 0.00296 = 31.06 + 0.929 + (3.69 + 0.04) 0.001213.$$

$$\text{Thus } c = 0.929 + 3.73 \times 0.001213 + 0.66 \times 0.001213 - 4.07 \times 0.00296$$

$$= 0.9373 \text{ grams.}$$

The number 0.00296 for the density of carbon bisulphide vapor is obtained by substituting, in Clausius' equation for the density of saturated vapors, the values found by Joule and Regnault for E and $\frac{dp}{dT}$.

In conclusion it may be remarked that the method is only available in the case of a few vapors, on account of the large amount of substance used up in the determinations.

II. — *On the Color-Vocabulary of Children.*

By HARRY K. WOLFE.

The very interesting investigations and discussions on the development of the color-sense in man, during historical times, have indirectly shown the deficiency of ancient languages in words for simple sensations. Even if the validity of the inference drawn by the original investigators is more than doubtful, their labor has not been in vain. In seeking evidence for the recent evolution of the sense of color, Gladstone, Geiger, and others have shown that few words denoting color are used in the earliest literature of several nations. Furthermore, most of the color-words found denote shades of red, orange, or yellow. Violet is never named, blue very seldom, and green much less frequently than we might expect from its occurrence in nature. Quite similar results have been obtained from examination of the vocabularies of modern uncivilized peoples.[1] Although most tribes have names for the principal colors of the spectrum, the terms denoting red or yellow are far more numerous and much more definite than the others.

The inference from these facts has been that primitive peoples are deficient, not merely in words for color, but also in color-perception. In making the perception depend on the name, the fact was overlooked that the conception must precede the name. Moreover, the latter is not invented until the desire arises to communicate the conception to others.

It is not my purpose at present, however, to show that this

[1] Dr. Hugo Magnus: *Untersuchung über den Farbensinn der Naturvölker*, S. 43 *et seq.*

conclusion is a *non sequitur.* It is now generally believed that other conditions than lack of discriminative power have caused the paucity of color-words in the languages of early peoples.

No exhaustive investigation into the science of names has ever come to my notice. When the science of onomatology shall have been more completely developed, it will show, not merely the philological origin of our name-words, but also why these were coined and why others were not coined. Philology may show whence a word comes; why it comes at all must be determined by another science.

An imperfect generalization may be formulated from a few simple examples. Among our immediate friends a name is required for each individual; but in the social world the family name is often sufficiently definite. In dealing with large bodies of men, as in military affairs, the group of one hundred or even of a thousand may be highly enough specialized. Generally the company or regiment is known only by its official title, or by the name of its chief officer. In these cases no one suspects the cause of class-names to be weak discriminative power in man. We are able to discriminate the individuals of these aggregates, but we do not need to designate them. Among the lower animals it is only those individuals with which we come in frequent contact that receive special names. Few men know a dozen individual dogs by name, or half as many cats, or even a single bird. It is only some peculiar circumstance that assigns names to plants, such as the 'Charter Oak,' the 'Oak of Dodona.' Garden plants are usually designated by means of their particular location, by reference to the source from which they were obtained, or by some peculiarity of the plant itself. The awkwardness of their names indicates that the necessity for individual designation is not commonly recognized. It seems quite ridiculous to say we do not have a separate name for each house-fly, because we are unable to distinguish one from another. If there were no other reason, this would doubtless be sufficient, yet no one thinks this circumstance

of the slightest importance. Our interest in the house-fly is not of such a nature as to require more than specific distinction, and this the word 'house-fly' gives us. An example of the superior interest which multiplies names is found in the herdsmen, who often distinguish and specially designate many of their cattle and horses. Long association with herds, convenience, and lack of other mental employment doubtless contribute to this result. Inanimate objects receive individual names only when uncommon circumstances distinguish them from their kind. Such circumstances may consist in the unusual nature of the object, or in its exceptional relation to ourselves.

The languages of races peculiarly situated with regard to animals, plants, or physical phenomena exhibit extraordinary specialization of words denoting such relations. Thus the Arabs are said to have at least one hundred names for lion and fifty for locust. The language of the Marianne Islanders has twenty appellations for the different stages in the growth of the cocoanut.[1] The Chinese have many words for familiar objects, as cow, rice, etc. Among warlike people the variety of military terms is remarkable. On passing from material objects to mental phenomena it will be observed that comparatively few simple sensations have names. In this respect, however, the modern languages are far superior to the ancient. Locke noticed and deemed it worth while to record this peculiarity of language.[2] He furthermore remarks concerning the indefinite character of names that "men generally content themselves with some few obvious qualities," and adds that "in organized bodies it is usually the *shape*, and in other bodies the *color*, that serves as a distinguishing mark."[3]

In temperature, 'hot,' 'warm,' 'tepid,' 'cold,' and 'cool' are the chief terms used. For the muscular sense we employ 'heavy,' 'light,' and 'elastic.' For touch there exist the terms

[1] Farrar: "On the Growth of Language," *Journal of Philology*, II. 13 *et seq.*

[2] *Essay concerning Human Understanding*, Bk. II. Chap. 3, § 2.

[3] *Ibid.* Bk. III. Chap. 6, § 29.

'rough,' 'smooth,' 'slimy,' 'greasy,' 'granular,' 'hard,' 'soft,' and 'sharp,' besides many words taken from materials, as 'velvety,' 'silky,' 'gummy,' and 'furry.' 'Sour,' 'bitter,' and 'sweet' are the most important designations of tastes. Comparison with the taste of better known substances is the chief expedient adopted to increase the definiteness of these descriptions. Odors are described in terms quite analogous to those employed for tastes. Sounds are 'high,' 'loud,' 'low,' 'shrill,' 'deep.'

It will have been noted that the words for sensations given above are, without exception, adjectives. Nearly all the corresponding abstract nouns are used; but very few concrete nouns for these sensations exist. In sound, however, we have such concrete words as 'tone,' 'noise,' 'roar,' and 'splash,' besides many participial nouns, as 'rumbling,' and 'singing.' If a high degree of accuracy is not required, the combination of adjectives with substantives, or of adverbs with adjectives, takes the place of new names. In this case there is, of course, a comparison with definite names, as 'a dark pink,' 'less bitter than gall.'

Color is the most elementary mark of distinction between objects. It seems to require less energy for its apprehension than any other quality of bodies. When used in connection with form it affords the most common means of describing any object in nature. If to these, size be added, we probably have the complete method employed by the larger part of the race to describe any unfamiliar object. We are again reminded of Locke's generalization. Although color is so universal and so constantly used in description, it is, nevertheless, very indefinite. In describing any object to one unacquainted with it, we involuntarily attempt to give its color: and we nearly always find difficulty in doing so. It is recognized as a powerful means of vividly bringing the object before the mind of a listener; yet unless it is a common object, or unless we have decided on the name of the color while it was before our eyes, we are unable to name it satisfactorily. Our own idea of it is indefinite. We experience

no such difficulty in stating approximately the size or shape of the object. The cause of uncertainty doubtless lies in the nature of our *memory* for color.[1] It is probable that the reproductions of color-sensations do not correspond exactly, even in *quality*, to the original impressions.

The sense of sight, perhaps, has developed a larger vocabulary than any other sense. Its words, too, have advanced farthest on the way from adjectives to substantives. The number of color-terms in modern languages is surprisingly large. French is said to have more than six hundred. Günther Wagner advertises about two hundred pigments in water colors, most of which have individual names (German). Including technical terms, the English language doubtless contains more than three hundred words denoting color; though the dictionaries do not contain half that number. Thirteen members of the senior class (1889) of the University of Nebraska wrote an average of twenty-six color names in *five minutes* without previous thought on the subject.[2] In these lists, written on the spur of the moment, there appeared *ninety* different names, about half of which are in common use. Most of the remainder were names of pigments. It may be confidently stated, I think, that an educated person possesses a color-vocabulary of at least twenty-five terms.[3]

There seems little doubt that the practice of naming sensations or objects tends to increase the power of discrimination. It must not be inferred from this, however, that paucity of names indicates more than an indistinctness of perception in regard to the finer differences. One would not conclude that a person is unable to distinguish geometrical figures, because he is ignorant of their names. It is also evident that delicacy of discrimination is not the only cause of the multiplication of

[1] As far as I am aware, no experiments on memory for colors have been described. If I am enabled to continue such a series already begun, a contribution to this question will soon be offered.

[2] Neither colors nor names had received even incidental attention at our meetings, and until the test began none knew what was required.

[3] It will not be understood that these terms usually represent as many clear ideas of color-differences.

names. Not only are comparatively few sensations provided with names, but the distribution of these names is not in proportion to the delicacy of sense-discrimination. The sense of tone is, perhaps, even finer than that of color, yet it has not nearly as many terms in common use. The relation between the vocabularies of sight and hearing is peculiar. In sound there are few words for absolute pitch or intensity; but there is an exact method of comparing and determining sensations with very slight variations. Though the nomenclature of music is technical, it is extensive and definite. More names for color than for sound are in general use; yet these are not so well determined, and to different people represent different ideas. Even the methods of science are insufficient to determine with satisfactory accuracy a criterion and scale in color. Sounds differ in intensity, purity, and quality; and colors have no other modes of variations. Sound forms a continuous scale in all these particulars; and color has precisely the same characteristics. The distinctness of the one and the vagueness of the other are, nevertheless, clear to all observers. This may depend upon the predominating influence of the rate of vibration which, in sound, is perhaps more directly apprehended, as well as objectively more easily determined. The larger number of common names for color than for sound may be owing to the *demand;* the greater accuracy of the terms denoting sounds may depend upon the relative simplicity of auditory sensations.

In the growth of vocabularies there appears to be a tendency to unite individual names into groups designated by class-words, and these into still higher groups. In these larger divisions there is a tendency to specialize by limiting the class-words. If the first names denoted individuals, it is evident that the generalizing tendency began very early. This progress towards the more general was accompanied by a process of degeneralization approaching individualization, which was carried forward not merely by means of new words, but also by limiting the extension of the general term.

If we seek the conditions fixing the extent and accuracy of

any special vocabulary, they will be found in the *delicacy of the discriminative power* and *the need for expressing small degrees of difference.* The truth of this generalization is most clearly seen in the color-vocabulary, to which the remainder of this article is devoted. The eye is most sensitive at the red end of the spectrum. Here also we find the greatest need for color-names, and by far the largest number of terms in use.

Few investigations on the knowledge and use of words among very young children have come to my notice. The ease with which special information of this nature might be collected renders it probable that such will soon be forthcoming. The early development of the sense of color in the individual is clearly indicated in Preyer's observations on his own child.[1] During the first few days after birth, the child probably distinguished only light and dark, and these very imperfectly. On the eleventh day a burning candle seemed to give it pleasure, and even before this time the mild sunlight from the window attracted its notice and caused it to turn its head in that direction. The first object which, on account of its color, seemed to attract the attention of the child was a pink curtain brightly illuminated by the sun, and about a foot from its face. This was first observed on the twenty-third day.

When Preyer began systematic experiments in the eighty-fifth week, no trace of ability to associate names with colors could be detected. There was, however, undoubtedly a perception of color apart from light and dark, as the pleasure in bright colors clearly indicated. Repeated attempts to have the child associate the name with the color were in vain, even when only red and green were used. On the 758th day the number of correct answers so constantly exceeded the incorrect ones that a beginning of correct association could be detected. On the 763rd day almost complete association was established and afterwards maintained for these two colors in the absence of others. Yellow was added and un-

[1] *Die Seele des Kindes*, 2te Aufl., S. 7–16.

certainty in the first two naturally followed. Yellow was easily mastered and soon was more surely named than the others. As new colors were added, association became more difficult. The development of the child's mind as shown in mastering these associations was remarkably rapid.

Until the thirty-fourth month the colors used and the per cent of correct answers were as follows: yellow 96.7, brown 90.8, red 86.7, violet 85.3, black 84.8, pink 72.4, orange 67.1, gray 51.5, green 45, blue 28.8. Preyer evidently believes from the above results and from other observations that green and blue are not as early distinguished as yellow and red. The accuracy with which violet was named would seem to render this conclusion doubtful.

The child had practice first in red and green, and then in the other colors in the following order: yellow, blue, violet, gray, brown, pink, black, orange. If we consider this fact, it will change to some degree the apparent relative ease in associating the name with the color. It is evident that after the child has had practice with certain color-words, it will be much better fitted to take up new ones. Had green and blue been introduced later, they would probably have occupied a higher relative rank. On the other hand, if yellow and red had first been used later, they would have occupied a still higher position in the scale. The other colors would evidently have fallen into a lower relative position had they been introduced earlier. It must be added that many of the later experiments were conducted in a different manner from the earlier ones. At first the child was required to select the color called for by the father. Later, the child both selected and named the colors. Blue was the hardest to distinguish. In the twilight it was often called gray when its true nature was quite apparent to adults. Preyer's observations prove conclusively that it is possible for children two or three years old not merely to distinguish colors, but to apply to them their proper designations. It is probable that ordinarily children do not learn so early to associate colors and their names, though Preyer intimates that at three or four

years of age they often do name colors with accuracy, even when not specially instructed. He mentions the case of a boy four years old who, uninstructed in colors, recognized and named red, yellow, green, and blue in the rainbow.

Professor Holden has given an interesting account of investigations made to determine the vocabulary of children.[1] He emphasizes the fact that the results show a much larger number of words used by the young than is generally supposed. His first case is that of a girl (M. H.). During her twenty-fourth month she used 483 words. In all cases Professor Holden excluded words not used with evident understanding of meaning, and all nursery rhymes, etc., learned by rote. An examination of these 483 words shows not *one* referring to color. Another girl (M. M. H.) used 399 words, none of which indicate color. A boy (B. K.) used 173 words, among which occur black and white, but none other referring to color. It certainly is very remarkable that in none of the cases described by Professor Holden was there a real color-term employed, and in only one case was even black or white used.

Grant Allen's conclusions, based on experiments which he does not describe, coincide with the above. "A child two years old (or a little more) knows very well the names of grapes, strawberries, and oranges; but for purple, crimson, and orange as colors it has as yet no appropriate verbal symbols."[2]

Professor Holden intimates that the acquisition of words about the beginning of the third year is very rapid; hence it is not improbable that Preyer's conclusion may have a quite general application. On the other hand, it is possible that children may know and use the names of colors without a clear perception of their differences. They may learn from the conversation of adults that certain objects have particular colors. They would then be able to apply these words

[1] Trans. Am. Philol. Assoc., 1877, p. 58 *et seq*, "On the Vocabularies of Children under Two Years of Age."

[2] *The Color-Sense: Its Origin and Development*, p. 250.

correctly in many instances even though no distinct perceptions of color were present. Whether the name precedes or follows, the sharp discrimination in sensation doubtless depends on the environment and education of the child. We must carefully distinguish the ability to recognize color-differences from the habitual exercise of the ability. The average child will seldom make comparisons of colors unless stimulated by others. And it is only by means of comparison that the active recognition of a color's individuality is awakened. If left to themselves most children will have in mind more color-names than clear ideas of color. They also will be able, perhaps, to apply these names better to natural objects than to artificially prepared surfaces. This of course indicates that the child has associated the *name* of the color with the object, rather than with the peculiarity of the color.

A few years ago while investigating the color-sense of the children of the public schools of Lincoln, Nebraska, it occurred to me that with little additional labor a test of ability to name colors might also be made. The results of such test are described in the following pages.

The colors used were oil pigments on card-board previously treated with a coating of common glue. Each card was five and one-half centimetres square. The children were examined separately out of the hearing of their fellows. The cards were placed one at a time, and always in the same order, before each child. As soon as one answer was given, another card was placed upon the first in order to prevent comparison as far as possible. The question was, "What color is that?" Only in a few cases was there a desire expressed on the part of the child to change his verdict after seeing other colors. Generally, after a card was covered by another, he seemed to forget the former and to give his whole attention to the one in view. In all cases only the first name is given in the tables unless the change was desired before another color was seen. In this instance the child was allowed time to select one name. The time given to each pupil varied

from one to five minutes; yet it seldom exceeded three minutes. Slow or backward children were given time to think; and all appearance of haste was avoided. While the child was finding one answer, I made a record of the answer preceding.

Although many children five years old may be superior in every way to their classmates several years older, it yet seemed better to make age the basis of comparison rather than the artificial classification of the schools. Children ten years old and naturally bright are often classed temporarily with those five or six years old, because they have been deprived of book instruction. Their sense-perceptions may be as keen and as fully developed, and their vocabulary of terms as large, as that of children equal in age but several years in advance of them in the school course.

It ought to be said that no systematic instruction about color had ever been given in these schools. A few teachers occasionally gave lessons on the "primary" and "secondary" colors. Some first-grade teachers also used colored paper and sticks for aids in drawing, designing, and numbers, without more than incidental attention to the colors. Comparison of the city schools with a few country schools in which colors had never been used failed to reveal the slightest influence of the "color-teaching" in the city.

As before stated, the investigation was undertaken primarily with a view to determine the accuracy of the color-sense in the young.[1] I have, therefore, excluded the answers of those found to be deficient in the sense of color, and shall tabulate them separately for comparison with the answers of normal children. For the purpose of comparison with the results given by Preyer and Holden, the ratio of correct answers by children five, six, and seven years old is given separately for each age. The results obtained from the older pupils are given in groups of three years each. It was not deemed necessary to employ more than the very common colors with the younger pupils. Even pink was omitted from

[1] The results obtained will soon be published.

Table I.

Age	5		6		7		8-10		11-13		14-16		17+	
Sex	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
No. Examined.	28	20	71	77	101	85	367	335	274	303	181	177	27	46
White.	964	950	986	1000	980	1000	1000	997	1000	997	983	1000	1000	1000
Black.	1000	950	958	961	960	988	997	994	982	983	989	983	1000	935
Red.	821	1000	901	987	970	988	984	988	985	993	995	989	926	935
Blue.	679	950	859	961	911	977	943	964	978	980	989	983	1000	978
Yellow.	571	750	761	832	782	918	924	970	956	977	983	989	963	957
Green.	679	900	817	858	881	988	896	964	942	980	961	1000	963	1000
Pink.	208	733	500	655	406	770	526	889	683	928	795	954	778	935
Orange.	0	50	56	52	20	94	98	212	186	317	149	249	222	328
Violet.	0	0	28	0	0	12	8	9	26	23	17	34	148	22

the list used in several first-grade rooms. The preceding table exhibits the number of correct answers in a thousand for the more common colors by children of different ages. M indicates males, and F females.

Careful study of this table yields some unexpected results. It will be remembered that Preyer's child learned to recognize and to name colors in the following order: yellow, brown, red, violet, black, pink, orange, gray, green, blue. These children name them in an entirely different order. White, black, and red were nearly always correctly named. Blue clearly occupies the fourth place. During the first few years even green precedes yellow, though on the whole this order is reversed. Pink uniformly falls seventh, orange eighth, and violet last. It is not strange that the position of orange and violet should be very different in the two cases. Preyer's child had been specially drilled in color-names, and these children had, perhaps, seldom heard of orange or violet. The remarkable change in the absolute and relative positions of yellow and blue cannot be so easily accounted for. Yellow was most easily recognized and named by the instructed child. Uninstructed children, a few years older, name four other colors more accurately. Blue was by far the most difficult of ten colors to Preyer's child. In my experiments it was scarcely the most difficult of four colors, being almost as surely named as red or black.

The most constant progress during the first three years is to be observed in connection with yellow and green. It is found among both boys and girls. The table also shows that the improvement in yellow exceeds that in green. On the whole, the girls appear to name green more correctly than yellow, while the reverse is true of the boys. Whether this fact in any way depends upon the greater frequency of color-blindness among the boys, cannot be decided without further investigation. It ought to be said, however, that many writers on color-blindness have acquired the habit of referring to it as an absolute instead of a relative defect. There are, doubtless, degrees of color-perception as well as

of vision in general. It is not improbable, therefore, that the difference between boys and girls in naming these colors is due to the relative distinctness with which the sexes perceive green. The exceptions to this rule in the first few years may be the result of indefinite nomenclature, together with a larger number of terms having some resemblance to yellow.

The relative accuracy with which these children named the colors employed is, therefore, as follows: white, black, red, blue, yellow, green, pink, orange, violet. The younger pupils found green easier to designate than yellow. There is also a greater difference between blue and green in the answers of the younger pupils. I think the variation in these two instances is, perhaps, greater than the difference in familiarity with the colors would require; yet greater uniformity is to be expected among older subjects. It is not desirable to make the ability to name colors a test of individual development or of scholarship; but the improvement during the early years of childhood is worth noting. We should expect girls to name colors much more accurately than boys of equal age. Not only are the sexes very unequally endowed by nature, but the opportunity for developing this sense is afforded to woman in much the more attractive form. I doubt if we should expect, from general knowledge, that girls eight years old will, on the average, name the above nine colors better than boys sixteen years of age. The greatest improvement is in pink, and of course is made by the boys. At five years of age they give the correct answer once in four times. At sixteen about eight-ninths of their answers are correct.

Orange seems to require special instruction for general recognition. Its situation is peculiarly unfortunate. If the child decides that it is not red, he is pretty sure to say it is yellow. If yellow occurs to him first, he makes up his mind that 'it isn't exactly yellow,' hence calls it red. This wavering between red and yellow was a very interesting experience during the investigation, and will be referred to again when I come to treat of the nature of the incorrect answers.

Violet was very seldom correctly named. Indeed, it is very rarely properly conceived by more experienced people. It is doubtless true that the common idea of violet would place it among the reds, whereas a moment's thought would convince most persons that it more nearly resembles the blues. The name seems to be comparatively unused, and almost never employed in every-day life to denote the real color. The very interesting results of the incorrect answers in this color will be considered presently. It will be noticed that the ignorance respecting violet and orange offers convincing proof of the absence of color-instruction in the schools. In my opinion this circumstance adds not a little to the interest of these results.

Among the additional colors first employed with children ten years old, brown was by far the most readily named, and indeed ranks with green and yellow. Owing to the smaller number of individuals examined I shall merely compare the results with those already given, and refer the reader to the final tables containing the right and wrong answers of each separate color. Drab was correctly named by about one-third of the children. There was less difference between the accuracy of boys and girls in drab and also in purple (which was less surely named) than in pink and orange. Gray was named correctly nearly as often as purple; while lilac, crimson, and scarlet were reduced to the rank of violet. That gray and drab were named scarcely more correctly than purple, and much less so than brown can be accounted for only by their great resemblance, and by the numerous words used for tints closely allied to them.

It may be interesting to give the proportion of correct answers to the nine chief colors, for each year and sex. This table will show the rate and time of improvement.

The girls make very little progress after the eleventh year. The greatest gain of the boys also occurs before this age, yet they are still quite inferior to the girls. The boys continue advancing, until at seventeen there is less difference between the sexes than at any previous period.

TABLE II.

SEX.	M.	F.	SEX.	M.	F.
AGE.			AGE.		
5	554	698	12	760	787
6	655	701	13	743	806
7	671	747	14	761	806
8	702	768	15	762	792
9	711	778	16	767	795
10	712	783	17+	778	800
11	746	802			

The following tables exhibit in detail the number of correct answers and the character of those which were incorrect for each color used. The numbers are absolute, as it did not seem advisable to reduce these results to a uniform scale. The most common false answers are indicated separately; the less common are grouped together under "*Other.*" If no name was given, the case was recorded under "*Blank.*" Three boys were unable to name white. Four boys and three girls gave other names to this color, such as red, green, slate, blue, etc. Two boys and three girls could not give any name to black. Seven boys and six girls called it green. One boy and seven girls thought it was brown. Five boys and two girls assigned to it other names, as blue, red, *white.*

From the adduced examples the method of using the tables will be recognized. It is believed that these complete tables offer material of more value than the random selection of odd instances. The reader may select queer cases, and surprise himself as taste dictates.

Table III.

Age		5-7		8-10		11-13		14-16		17+	
Sex		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
No. Examined		200	182	367	335	274	303	181	177	27	46
Red.	Red.	185	180	361	331	270	301	180	175	25	43
	Blue.	4	1	...	1	2	...	...	...	...	...
	Yellow.	1	...	2	...	...	...	...	...	...	...
	Green.	1	...	...	...	...	...	...	...	...	...
	Brown.	2	...	...	1	1	...	...	...	...	...
	Blank.	4	1	4	1	...	...	...	...	...	...
	Other.	3	...	...	1	1	2	1	2	2	3
Blue.	Blue.	172	176	346	323	268	297	179	174	27	45
	Green.	10	2	10	3	4	1	2	1	...	...
	Red.	3	3	1	2	1	...	...	...	...	...
	Indigo.	...	...	1	...	...	...	...	2	...	...
	Purple.	2	...	6	6	...	5	...	...	...	...
	Blank.	9	1	3	1	...	...	...	...	...	...
	Other.	4	...	...	...	1	...	...	...	...	1
Yellow.	Yellow.	149	157	339	325	262	296	178	175	26	44
	Green.	19	8	14	4	6	1	1	...	...	...
	Blue.	7	9	1	1	2	...	...	...	...	...
	Pink.	5	3	3	...	1	...	...	...	...	...
	Orange.	...	...	2	2	1	6	2	1	...	1
	Blank.	15	3	4	1	2	...	...	...	...	...
	Other.	5	2	4	2	...	...	...	1	1	1
Green.	Green.	166	168	329	323	258	297	174	177	26	46
	Blue.	18	9	31	6	14	6	5	...	...	...
	Red.	2	...	1	2	...	...	1	...	...	...
	Yellow.	3	2	3	2	...	...	...	...	...	...
	Pink.	2	...	2	...	...	...	...	...	...	...
	Blank.	8	3	...	2	1	...	1	...	1	...
	Other.	1	...	1	...	1	...	...	...	...	...

TABLE III. — *Continued.*

AGE		5-7		8-10		11-13		14-16		17+	
SEX		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
NO. EXAMINED		200	182	367	335	274	303	181	177	27	46
ORANGE.	Orange.	6	13	36	71	51	96	27	44	6	15
	Red.	80	62	139	105	99	79	77	51	12	9
	Yellow.	39	41	59	82	39	44	12	12	2	3
	Pink.	18	9	27	6	14	10	6	3	2	1
	Brick.	...	...	...	3	2	8	2	18	...	5
	Green.	...	6	3	1	...	...	...	...	...	...
	Brown.	4	3	12	8	13	14	13	8	2	1
	Purple.	1	2	4	2	1	1	1	...	...	...
	Salmon.	...	1	1	2	...	3	...	2	...	2
	Drab.	...	...	2	...	1	...	4	...	1	...
	Blank.	46	41	79	51	50	45	35	26	1	2
	Other.	6	4	5	4	4	3	4	13	1	8
VIOLET.	Violet.	2	1	3	3	7	7	3	6	4	1
	Blue.	91	88	196	136	132	104	107	56	15	13
	Purple.	28	47	71	156	69	174	49	105	7	30
	Pink.	3	2	21	8	12	...	1	...	...	1
	Brown.	5	4	5	1	4	1	...	...	...	...
	Red.	3	5	7	...	...	...	1	...	...	...
	Drab.	...	...	2	6	2	1	1	1	...	...
	Green.	4	1	2	2	6	1	...	...	...	...
	Yellow.	2	4	3	...	1	...	...	...	...	...
	Lavender.	...	...	...	3	1	1	1	...	1	...
	Blank.	56	28	51	16	36	9	16	5	...	1
	Other.	6	2	6	4	4	5	2	4	...	...
BLACK.	Black.	193	177	366	333	269	298	179	174	27	43
	Green.	2	1	1	1	2	2	2	...	...	2
	Brown.	...	1	...	1	1	2	...	2	...	1
	Blank.	2	2	...	...	...	1	...	...	...	...
	Other.	3	1	...	...	2	...	...	1	...	...

TABLE III. — *Continued.*

AGE		5-7		8-10		11-13		14-16		17+	
SEX		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
No. EXAMINED		200	182	367	335	274	303	181	177	27	46
WHITE.	White.	196	181	367	334	274	302	178	177	27	46
	Blank.	2	...	...	...	...	...	1	...	...	...
	Other.	2	1	...	1	...	1	2	...	...	...
No. EXAMINED		145	143	289	262	255	279	180	175	27	46
PINK.	Pink.	60	103	152	233	174	259	143	167	21	43
	Red.	33	17	52	12	19	4	8	4	...	...
	Blue.	6	4	3	...	...	...	1	...	...	...
	Yellow.	12	8	16	7	11	1	7	...	...	1
	Purple.	4	3	17	4	16	3	6	1	5	...
	White.	1	...	1	...	1	...	1	...	...	...
	Green.	4	...	1	...	...	...	...	...	...	...
	Blank.	24	8	40	5	30	10	12	1	...	...
	Other.	1	...	7	1	4	2	2	2	2	2
No. EXAMINED		...	...	19	9	116	151	155	159	27	45
DRAB.	Drab.	...	...	4	4	37	70	50	81	8	33
	Green.	...	...	1	...	2	2	3	1	...	...
	Blue.	...	...	2	...	13	10	9	8	4	...
	Gray.	...	...	6	4	27	36	23	36	4	4
	Slate.	...	...	2	...	8	17	29	14	3	3
	Lead.	...	...	...	...	3	2	9	3	2	2
	Brown.	...	...	...	...	7	3	6	2	1	1
	Black.	...	...	1	...	1	1	1	...	...	...
	Lavender.	...	...	1	...	1	1	3	1	2	1
	Blank.	...	...	1	1	12	5	15	6	2	...
	Other.	...	...	1	...	5	4	7	7	1	1

TABLE III. — *Continued.*

AGE		5-7		8-10		11-13		14-16		17+	
SEX		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
NO. EXAMINED		...		19	9	116	151	155	159	27	45
GRAY.	Gray.	...	...	9	5	29	41	25	38	6	5
	Green.	...	...	1	...	4	...	4	1	...	...
	Blue.	...	...	2	1	12	9	10	6	6	3
	Drab.	...	...	1	3	32	64	52	77	7	31
	Lavender.	...	...	1	...	2	4	...	2	1	...
	White.	...	...	2	...	2	1	1	...	...	...
	Lead.	...	...	...	...	5	4	12	4	3	3
	Slate.	...	...	...	...	5	14	21	14	4	5
	Brown.	...	...	...	..	4	4	7	5	...	1
	Blank.	...	...	3	...	15	17	15	8	1	...
	Other.	...	...	...	...	6	3	8	4	2	...
SCARLET.	Scarlet.	...	...	...	...	2	4	1	3	...	2
	Red.	...	...	19	9	113	146	149	153	26	41
	Vermilion.	...	...	...	...	...	...	3	1	...	1
	Blank.	...	...	...	...	1	...	...	...	...	...
	Other.	...	...	...	...	...	1	2	2	1	1
LILAC.	Lilac.	...	...	...	...	...	6	2	7	...	4
	Pink.	...	...	3	3	40	53	37	34	8	8
	Purple.	...	...	12	1	36	43	46	50	3	15
	Blue.	...	...	2	2	8	4	7	1	...	1
	Lavender.	...	...	...	1	4	14	8	32	...	6
	Drab.	...	...	1	...	3	...	3	2	2	...
	Violet.	...	...	...	...	2	1	3	4	4	2
	Red.	...	...	...	...	...	3	1	...	2	...
	Blank.	...	...	1	2	20	24	39	25	4	5
	Other.	...	...	...	...	3	3	9	4	4	4

TABLE III. — *Continued.*

AGE		5-7		8-10		11-13		14-16		17+	
SEX		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
NO. EXAMINED		...		19	9	116	151	155	159	27	45
PURPLE.	Purple.	...	...	9	4	24	37	49	45	7	7
	Red.	...	...	1	2	21	46	17	33	6	9
	Wine.	...	...	1	1	2	10	1	13	2	6
	Blue.	...	...	2	...	3	2	1	1	...	...
	Brown.	...	...	...	1	14	3	22	6	6	3
	Drab.	...	...	1	...	7	...	4	1	2	...
	Plum.	...	...	...	...	...	7	...	14	...	5
	Pink.	...	...	...	...	6	1	7	5	...	...
	Blank.	...	...	5	1	34	37	49	28	4	7
	Other.	...	...	...	...	5	8	5	13	...	8
CRIMSON.	Crimson.	...	...	1	...	1	4	5	6	2	2
	Red.	...	...	18	8	100	121	129	122	23	35
	Wine.	...	...	...	1	1	15	8	12	1	4
	Cherry.	...	...	...	...	1	2	1	3	...	1
	Cardinal.	...	...	...	...	2	4	...	6	...	1
	Pink.	...	...	...	...	1	...	3	...	...	...
	Garnet.	...	...	...	...	1	1	...	3	1	...
	Blank.	...	...	...	...	3	2	1	...	...	...
	Other.	...	...	...	...	6	2	8	7	...	2
BROWN.	Brown.	...	...	16	6	106	135	137	148	25	42
	Red.	...	...	...	3	4	11	6	6	1	1
	Plum.	...	...	...	...	...	2	...	...	...	...
	Wine.	...	...	...	...	...	3	...	4	...	...
	Purple.	...	...	...	...	2	...	...	...	...	...
	Blank.	...	...	3	...	3	...	8	...	1	...
	Other.	...	...	...	...	1	...	4	1	...	2

It will doubtless be inferred that the mistakes in naming such common colors as black and white are the results of inattention. It seems almost incredible that children with sufficiently good eyesight to attend the public schools should be unable to recognize white and black. Scarcely less surprising is it that children could be found, who, though able to read, are incapable of associating the words white and black with the corresponding surfaces. In this connection several things are to be remembered if we would avoid false conclusions. This paper has nothing to do with the color-perception of the children examined. The answers of those found deficient in the sense of color are excluded from the tables. I do not believe it even possible that any child represented in the tables would have hesitated an instant if black and green, for example, had been placed before him at the same time with the request that black be pointed out. The fault does not lie in the ability to discriminate present sensations. It exists rather in the process of association. The bond of association between sensation and name is so weak that the former fails to call up the latter. Hence also the false name fails to recall *its* corresponding sensation; thus the only opportunity of correction is wanting. If we seek a remoter cause of these results, it would doubtless be found in the nature of color-impressions. An approximate idea of what I mean may be gained by trying to determine from memory the difference between lilac and lavender. Unless specially experienced in colors and their names, we should find our conception of this difference quite vague. It is a vagueness in reproduced sensations that causes so great uncertainty in naming. This, in turn, is caused by the indistinctness of accustomed perceptions; the whole depending, of course, upon the habitual want of attention to sensations. The habit of indifference to simple sensations during early life, I believe, tends toward the formation of indefinite ideas on more complex subjects. It would be an interesting question for future investigation to determine whether all ideas of school children are as indistinct. The question might

profitably engage the attention of those interested in the improvement of methods and means of elementary education. If children's conceptions of such simple sensations as color are so unsatisfactory, what is to be inferred regarding their mental pictures of more complex objects, as bird or tree; saying nothing of abstractions like goodness, or humanity?

A vagueness of perception is observed in the answers to all colors; though in the less common ones there are other elements of uncertainty, which partly conceal the lack of clearness. The practical effect of these results is to give emphasis to the advice of those educators who urge the training of the senses in our public schools. The attention needs stimulation, and no other means is so well adapted to this end.

The character of the incorrect answers to red deserves some attention. Why do so few of the assigned colors in any degree resemble red? It may be thought that they are merely chance names that happened to come into the minds of puzzled children. There must have been some determining cause as to what words should be used. Why should green be substituted so often for yellow and blue, and scarcely at all for red? It also will be noticed that green is seldom given for pink, scarlet, crimson, or purple. Yellow is very rarely assigned to blue, or any color containing blue. In neither of these cases is the converse true. Hence we cannot conclude anything regarding the substitution of colors nearly complementary. A few of the "other" names given to red were specific, as scarlet and cardinal.

The results in blue clearly contradict the popular impression that "many persons do not know the difference between blue and green." Only thirty-three among more than two thousand called blue green. This belief in the indefiniteness of the two colors is owing to their proximity and intermingling. If the pigments nearly approach the types, few children will mistake one for the other. If seen together, no one with normal eyes would think them more closely related than red and orange. In this case the names also would be interchanged much less frequently than if the colors were

brought successively into view. It will be noticed that green is much oftener called blue than blue is called green. Theoretically, we might expect yellow and green to be very often confused, lying as they do adjacent in the spectrum. Practically, however, we can only be surprised that these two colors are ever confounded. Fifty-three children called yellow green. The difficulty in naming yellow is certainly unexpected, and to me is inexplicable.

Orange offers some curious results. Nearly four hundred children were wise enough not to attempt to designate it. Not quite as many gave the correct name. As might be expected, more than half the answers belong to red and yellow, — red receiving about twice as many as yellow. The preference for red seems much stronger among the boys than among the girls. Pink and brown receive a large share of these guesses. Among the "other" names given to orange are blue, gray, scarlet, crimson, cream, wine, terra-cotta, plum, white, pumpkin, crab, tomato, strawberry, copper, vermilion, and several compound names, as reddish pink, yellowish red, etc. In all there were thirty-four distinct names given to orange. At least 150 answers are absurd, viz.: all pinks, greens, purples, drabs, and one-half those marked "other." If we attempt the analysis of this matter, a curious state of affairs is revealed. In the first place, these children have no clear ideas either of orange or of the colors whose names were given to orange. They probably have never learned the word 'orange' as the name of a color. (This is doubtless true also of far the larger number of the pupils examined.) Yet they all clearly perceived this color and, while looking at it, called it pink, green, purple, drab, cream, blue, or crimson. If their conceptions of these colors had been clear and closely associated with the terms, the thought of the word would have recalled the character of the color, and the absurdity would have been evident. Another result of studying the orange table is, that the pupils seem loath to confess their ignorance. Four-fifths of them attempted to name orange, and only one-fifth knew what it was. This

impulse in the child to do the best he can (*i.e.* to guess when he does not know), whether natural or cultivated, is worth investigating, both as to its causes and effects. I suspect our schools favor its development, and should like to know how and why they do so.

The results in violet very greatly resemble those in orange. Few correct answers were expected. The names of the adjacent colors, blue and purple, are most frequently employed to designate it. The boys prefer blue, and the girls purple. This is easily explained by the fact that the finer discrimination of the girls distinguishes violet from the more common blue. The boys seize upon the resemblance without attention to the difference. Again, boys very seldom use the word purple, and girls are, perhaps, accustomed to associate this term with a tint more nearly resembling violet than the real purple. Both these causes are doubtless active, and that they tend in the direction indicated may be seen by observing that the older and hence more discriminating the girls are, the greater the proportion of purples to blues. There were also many irrelevant terms applied to violet; *e.g.* pink, green, yellow, scarlet, black, and white. Fewer children gave no name to violet than to orange.

The number of correct answers in pink is larger than one might look for. The distribution of the incorrect replies is also unexpected. Among the younger children (boys especially) we should have anticipated as many reds as pinks. Instead of this being the case, there are comparatively few reds. Indeed, they are almost equalled by the sum of the yellows and purples. The superiority of the girls is, perhaps, more clearly seen in pink than in any other color. This is also the best general test for color-blindness. Among the other terms applied to pink are cream (five times), drab (seven times), green (seven times), besides orange, white, brown, gray, and blue several times each.

The remaining colors were not given to the pupils of the lower grades. It would be interesting to know in what way young children would designate gray, brown, and lilac.

Crimson and scarlet are, of course, red to nearly all observers. It is nevertheless strange that with the real red preceding these it occurred to so few children to assign other names. Nearly all the terms used for these two tints denote varieties of red. It is possible that more words were employed for crimson because scarlet always preceded it, and the children may have attempted to avoid a repetition of red by seeking other expressions. I am, however, inclined to think that this circumstance had very little influence, for red preceded scarlet, and many more terms were used for red than for scarlet. The variety of names for crimson most probably depends upon the peculiar nature of the color. Scarlet is a bright red; whereas the crimson used was dark, much less positive, and hence permitted the application of less definite names.

Brown was surprisingly well named. Further than this it offers little interest. Brown being rather a neutral color was often used by children with weak eyes or little discrimination for stronger shades, and especially for orange and violet.

Lilac was correctly responded to by only nineteen children, only two of whom were boys. Pink and purple claim the larger share of the false answers. There seems to be no apology possible for so many pinks. Indefinite ideas of pink, together with poor discriminative power, must have been the causes. The common idea of purple would allow lilac to be called a light purple, and a sharper discrimination would have brought more answers under this head. The incorrect terms are quite numerous, and nearly all of them have some foundation. A remarkable exception, however, must be noticed in the case of lavender. More than fifty girls deceived themselves regarding the nature of this color, being at the same time ignorant of the name or nature of lilac, else of both these.

The replies to purple are pretty evenly divided between purple and red; wine and brown also receiving a good share. The blue element may be considered as represented by the few answers under that head. The frequent occurrence of drab, and especially of brown, indicates very weak discrimi-

native power. Plum is not out of place, but this is scarcely true of pink. It is strange that fewer children should have given no answer to lilac than to purple.

The very general distribution of answers to the four colors, orange, violet, lilac, and purple, as also to gray and drab, yet to be considered, offers material of considerable interest. It shows in the first place how great a variety of words occurs to young minds for the same sensation. Not less than twenty children — not the same ones in each case — gave the name brown to each of the colors, orange, violet, purple, gray, and drab. No less than a dozen pupils in each case gave the name purple to lilac, blue, orange, pink, and violet. The number of colors often called blue is also large, while red appears among the answers to nearly all the test colors, gray and drab only excepted.

Drab and gray were very similar in appearance. The former was slightly darker, and contained a little blue. The latter was a mere mixture of black and white pigments. If seen side by side, no one would say they were the same color. Drab was correctly named oftener than gray, and also oftener than gray was called drab; yet gray was called drab more frequently than it was correctly designated. Though drab contained an appreciable quantity of blue, this fact is only slightly indicated in the tables. Nearly as many eyes saw blue in the gray as in the drab. Another slight recognition of the blue is the greater number of slate answers in drab. These tables show that children over eight years of age have many ways of designating the simple shades gray and drab. In all, gray received sixteen different appellations. Drab received all these and eight additional ones.

In general, red appears most frequently in the answers. Blue and green were each given to thirteen different colors. Yellow was comparatively rarely used. Purple occurs very often, yet is seldom applied with discrimination. Altogether for my sixteen tests the children found seventy-three distinct names; viz. red, orange, yellow, green, blue, violet, black, white, pink, brown, lilac, gray, scarlet, crimson, purple,

drab, salmon, plum, cream, wine, pumpkin, ornish, indigo, navy-blue, lemon, Indian-red, pearl, slate, lavender, ink (violet), blue-pearl, crab, tomato, brick, vermilion, cherry, lead, carmine, maroon, grape, crushed strawberry, cardinal, rose-madder, garnet, olive, yankee brown, dove, steel, mouse, flesh color, terra cotta, orbid, house trimming, strawberry, dark, burnt Sienna, copper, mauve, gold, blood, wood, clay, pansy, indigo-blue, sky-blue, magenta, buff, heliotrope, scarlet-lake, chrome yellow, cadmium, crushed raspberry, rose, solferino. I have admitted to the list two types (ornish and orbid) of many answers that were evidently results of imperfect attempts to reproduce words heard, but never understood.

Besides the above list there were sixty-six modifications or compounds of these elements; as, reddish yellow, pinkish drab, grayish blue. Some of the combinations display great originality. I have seldom been more amused than when sober-faced children, wishing to be very exact, called out, after thorough deliberation 'light-white.' It seemed impossible that anything should exceed the luminosity of this description of gray; but its ludicrousness was certainly excelled by the pupil who gravely replied '*dark-white.*' Only one step remained, and it was soon taken. The colored children, for some unknown reason, frequently employed the adjective dark as a substantive.[1] There are, of course, shades of dark. Several bright pupils, therefore, independently invented the expression '*light-dark.*' Among the other combinations are reddish blue, reddish pink, drabbish red, pinkish drab.

The total number of questions propounded to boys was 11,508; to girls, 11,797. The boys answered more than sixty-two per cent correctly, and the girls more than sixty-seven per cent. No answer was attempted by the boys to nearly seven per cent, and by the girls to nearly four per cent.

[1] Black was probably intended. This may be a method of designating their own complexion. Its relation to the popular expression for "colored person" is unknown to me.

Table IV.

	Red.	Blue.	Green.	Yellow.	Orange.	White.	Pink.	Brown.	Drab.	Gray.	Purple.	Blank.	Other.	Total.
Red.	**65**	2	4	1	....	....	....	....	....	....	....	1	1	74
Blue.	1	**67**	4	....	....	....	....	....	....	....	1	1	....	74
Green.	1	3	**56**	....	....	....	1	2	1	2	....	6	1	74
Yellow.	1	5	5	**58**	1	1	2	....	....	....	....	1	....	74
Orange.	33	1	5	14	**3**	....	3	4	....	1	1	9	....	74
Violet.	2	40	4	....	....	....	3	1	2	....	10	11	1	74
Pink.	11	5	3	5	....	4	**25**	....	....	1	3	8	1	66
Brown.	5	....	1	....	....	....	....	**19**	....	....	....	5	....	30
Crimson.	26	....	....	....	....	....	....	1	....	....	1	1	1	30
Scarlet.	30	....	....	....	....	....	....	....	....	....	....	....	....	30
Drab.	....	5	1	1	....	2	....	1	**6**	4	....	4	6	30
Gray.	....	....	7	....	....	3	....	2	8	**5**	....	1	4	30
Lilac.	1	4	....	1	....	....	12	....	2	....	2	6	2	30
Purple.	7	3	1	....	....	....	....	6	2	....	**3**	6	2	30

The answers of the seventy-four pupils who were found to be more or less deficient in color-discrimination have been excluded from the preceding tables. For the purpose of comparison these results are given at length in Table IV. No mistakes were made in black or white; hence they are omitted from the table.

It has long been held that name tests are of little value in the investigation of color-blindness; but, as far as I know, this table contains the only statistics on the manner of designating the common types actually employed by those deficient in the sense of color. It is evident from the table, that by this method the detection of defects would be very difficult. Boys with normal eyes named correctly nearly sixty-two per cent of the tests. Boys more or less color-blind named correctly about forty-four per cent. Curiously enough, even this small difference is not particularly prominent in the colors for which the color-blind eyes are especially defective. Nearly all were deficient in red, or green, or both; very few in blue or yellow; yet red was named nearly as well as blue, and green nearly as well as yellow. Defective vision is, perhaps, most clearly shown in naming pink. Much lighter than the red, it doubtless escaped recognition by many. This is especially noticeable in the four white and one gray answers; scarcely less so in the thirteen answers falling to blue, green, and yellow, and in the eight blanks. Gray was called green by seven children, and green was called by some red, pink, brown, or drab. On the whole, the blanks are only slightly more numerous than with normal children; yet green, pink, brown, and drab occur much more frequently in the answers of those with abnormal vision.

This table indicates in a measure the difficulty of detecting defects in the color-sense. It also shows the possibility of those who are color-blind learning to associate names with well-saturated, typical colors. Of course this last fact explains why so few ever recognize a defect in their sense of color.

III. — *On the Development of the King's Peace and the English Local Peace-Magistracy.*

By GEORGE E. HOWARD.

I. EVOLUTION OF THE PUBLIC PEACE.

The primary duty of government is the preservation of peace. There can be no society, no community, however loose the bond or however narrow the sphere, without some means for maintaining order. The genesis of government is the beginning of peace. The most cursory glance at the first Teutonic codes, and especially those of early England, reveals a restless anxiety to escape the violence and license of the times. Theft, assault, robbery appear on almost every page; and perjury has been well called the "dominant crime of the Middle Ages."[1] The Ripuarian and Salian codes are practically catalogues of crimes and penalties.[2] The old English laws, from those of Æthelberht and Ine to those of Æthelred and Canute, consist almost wholly of police regulations. Our ancestors possessed small talent for legislation. Even Ælfred the Great or the imperial Canute could do little more than make selection from the confused mass of customs relating to the peace — a confusion caused by the absorption of diverse tribes into the kingdom — and prescribe new or

[1] Hallam, *Middle Ages;* Forsyth, *Trial by Jury*, 69. On the prevalence of perjury in the early middle ages, cf. the interesting remarks of Bernardi, *De L'Origine et des Progrès de la Legislation Française*, 87–8; and those of Michelet, *Origines du droit Français*, pp. li.–lii.

[2] See Guizot, *History of Civilization*, II, 184 ff., for an analysis of these codes. For a critical examination of the *Lex Salica*, *Das alte Recht* of Waitz should be consulted. Behrend, *Lex Salica*, has provided an admirable edition of the text, together with a glossary. On the *Lex Ribuaria*, see Sohm in *Zeitschrift für Rechtsgeschichte*, Band 5, Heft 3.

more minute penalties for specific offences. The talent for organization and administration is our Norman heritage.

The Saxon codes are, in effect, handbooks for the peace administration, the rude precursors of those of Lambard, Dalton, and Burn. But between the advent of the local peace-magistrate, deriving his authority from the sovereign jurisdiction of a national king, and the dawn of the first vague conception of a public peace, of the state in embryo, lies the history of civilization.

(*a*). — *The Clan-Feud and the Clan-Peace.*

In the primary stage of social development — if *social* it may be called — the blood-feud [1] or self-redress prevailed. If a murder were committed, the next of kin was the avenger; if any injury to life or limb were inflicted, or a right transgressed, the wronged person was the agent of justice. All remedies were private remedies. It was a system of self-help pure and simple.

Such is the substance of current teaching as to the earliest condition of archaic man. But it must not be imagined that the blood-feud always remained a matter of *personal* force. To suppose that, would be to ignore one of the most far-reaching results of the study of comparative sociology — the disclosure of the fact that the family and not the individual is the unit of ancient society. Among all the races of mankind the constitution of the family, in its patriarchal or some earlier form, is the "basis and prototype of the constitution of the state." [2] Nevertheless, for all practical purposes, it is

[1] Anglo-Saxon *fæhth*, Middle English *fede*, Modern English *foe*, from A. S. *fâh* = hostile; cognate with Old High German *fêhida*, Middle High German *vehede*, from *fêhan*, *vehen* = *odisse*, to hate; Mediæval Latin *faida*. The word *feud* in this sense should not be confused with *feud*, a fief, which is of northern origin and different meaning. See Skeat, *Etym. Dict.*, at *feud;* Grimm, *Wörterbuch*, III, 1417, at *fehde;* Schade, *Altdeutsches Wörterbuch*, I, 174, at *fêhida*. On the form and significance of the word, cf. also Kemble, *Saxons*, I, 267, *note;* Schmid, *Glossar*, 570–1; Müllenhoff, *Glossary*, in Waitz, *Das alte Recht*, 282; Wilda, *Strafrecht*, 191 ff.; Meyer, *Institutions Judiciaires*, I, 43.

[2] Marquardt, *Das Privatleben der Römer*, I, p. 1. This theory of the origin of the state is already set forth by Plato, *Laws*, Book III, 680–1: Jowett, *Dia-*

the clan with which the student of Aryan society is primarily concerned; for, long before the beginning of positive history, the clan or gens had superseded the family as the starting-point of political life.[1] But the clan was merely the expanded form of the family, and like the latter it was held together

logues, IV, 209; and by Aristotle, *Politics*, Book I, 2: Jowett, I, 2 ff. Cf. Maine, *Ancient Law*, 120 ff., 250; Freeman, *Comparative Politics*, 87–90.

"Mag auch Sokrates bei Plato den Ursprung der Staatsgemeinschaft von der mangelnden Selbstgenügsamkeit oder Aristoteles denselben von dem Geselligkeitstriebe des Menschen ableiten, immer sind es nicht blosse Individuen, sondern bereits Familien, die das natürliche oder sittliche Bedürfnis zusammenführt; und die Familie bleibt deshalb auch fortwährend das Vorbild für die grösseren Gemeinschaften, zu welchen sich die Gesellschaft allmählich erweitert. Die durch Bande des Bluts verknüpfte Hausgemeinde ist der natürlichste Staatsverein, die patriarchalische Monarchie des Familienhauptes die ursprünglichste Regierungsform": Hermann, *Lehrbuch der griechischen Antiquitäten*, I, 29–30. On the patriarchal family as the unit of society, cf. Schrader, *Sprachvergleichung und Urgeschichte*, 394–5, 379 ff.; Spencer, *Principles of Sociology*, I, 705–45, II, 451–72; Gilbert, *Handbuch der griechischen Staatsalterthümer*, II, 302, 262; Maine, *Village Communities*, 15 ff.; *Ib.*, *Ancient Law*, chap. V; Fustel de Coulanges, *Ancient City*, 111 ff.; Hearn, *Aryan Household*, chaps. III, IV; Leist, *Alt-Arisches Jus Gentium*, 37 ff., 341–2, 349, 354, 420 ff.; Lange, *Römische Alterthümer*, I, 102 ff.; Herzog, *Römische Staatsverfassung*, I, 10–19 (an excellent account of the evolution of Roman social groups); Müller, *Handbuch der klassischen Alterthums-Wissenschaft*, IV, 17–22; Schömann, *Athenian Constitutional History*, 3–12; Morris, *The Aryan Race*, 107 ff.

Morgan, *Ancient Society*, 383–508, traces the growth of the family from original promiscuity through various successive forms before the monogamian is reached. See also McLennan, *Studies in Ancient History*, for theories of promiscuity, endogamy, exogamy, and marriage by capture. These two works are discussed by Maine, *Early Law and Custom*, chap. VII, and by Lubbock, *Origin of Civilization*, 50–113. McLennan is criticised by Herbert Spencer, *Principles of Sociology*, Part III, and by Morgan, pp. 509 ff. The whole subject is reviewed in a thorough manner by Wake, *The Development of Marriage and Kinship* (London, 1889); and preceding writers are sharply criticised by Starcke, *The Primitive Family* (New York, 1889), who gives a useful bibliography. For India, see the work of Leist already cited; also J. D. Mayne, *Hindu Law and Usage*, 35–87; and Lyall, *Asiatic Studies*, chap. VIII. On the Arab tribal groups the admirable book of W. R. Smith, *Kinship and Marriage in Early Arabia*, should be consulted.

[1] Fustel de Coulanges, *Ancient City*, 141 ff.; Maine, *Ancient Law*, 256, 123–4; *Ib.*, *Early Law and Custom*, chap. VII; Dahn, *Deutsche Geschichte*, I, 183 ff. "With the word *gens* the *political family* is designated": Puchta, *Institutionen*, I, 75.

by the double tie of common blood and the worship of a common ancestor.[1] It was originally a state in miniature; and from it were successively evolved all the higher types of social organization.[2]

In no branch of social science has the revelation of the fact that primitive society was composed of groups of kindred had more important consequences than in the domain of Ancient Law. And nowhere has ignorance or forgetfulness of it led to more curious errors or more fruitless speculation. Too often it is the "shifting sandbank in which the grains are individual men" which has occupied the mind of the in-

[1] Fustel de Coulanges, *Ancient City*, 9–52, gives the best treatment of ancestor worship; he is followed by Hearn, *Aryan Household*, 15 ff. Maine, *Early Law and Custom*, chaps. III and IV, and Morris, *The Aryan Race*, 132 ff., have excellent discussions. For India, see J. D. Mayne, *Hindu Law and Usage*, 55, and Lyall, *Asiatic Studies*, chap. II, for deification of men. On the Roman lares, consult Durny, *History of Rome*, I, 206. Cf. Starcke, *The Primitive Family*, 97, 101; Wake, *Marriage and Kinship*, 384, 447.

[2] The development of the successive types of social organism appears to have been as follows:

Græco-Roman. — By process of natural growth a certain number of families became united in a clan — the Roman *gens* or the Ionic *genos*. In like manner, in course of time, a union of gentes formed a *curia* or *phratria;* and a gathering of curies or phratries constituted the tribe, famous examples of which are the *tribus* of early Rome and the Ionic *phulai* of the Homeric age. Finally a gathering of tribes became a city or *polis*.

Germanic. — In the age of Tacitus the starting-point of political life was the *mark* or township (*vicus*), a localized clan or *sippe*. Next in order was the *gau* or *hundertschaft* (*pagus*), composed of a number of *vici* or marks; while a union of *gauen* formed the *völkerschaft* or tribe-state.

Each of these groups, in ascending series, must be regarded as successively representing a newer and more enlarged conception of the state: the lower being retained as subordinate members of the higher organism. But while the Greeks and the Romans of the Republic were not able permanently to pass beyond the city as the ultimate political unit, the Teutonic peoples advanced to the nation-state, in which the *völkerschaft* was retained as an administrative district — the English shire or the Frankish grafschaft. See Freeman, *Comparative Politics*, chap. III; Fiske, *American Political Ideas*, 64 ff.; Stubbs, *Constitutional History*, I, chap. II; and especially Sohm, *Die altdeutsche Reichs- und Gerichtsverfassung*, vol. I. This subject is discussed in detail, with citation of the principal authorities, in my *Introduction to the Local Constitutional History of the United States*, I, chaps. I, V, VI.

vestigator.[1] Thus, for example, we may partially account for the patriotic sentimentality of Rogge concerning the "noble" character of the "earliest historical basis of Germanic criminal law" as compared with that of other peoples.[2] And even Wilda, while criticising Rogge,[3] is himself at times not entirely free from the same fault.[4] But the phenomena of archaic jurisprudence assume a very different aspect for the observer who occupies the right point of view. He at once discovers that he no longer has to do with individual conduct absolutely unrestrained; but with organized bodies, "corporations" as it were, whose very existence in some degree implies the reign of law. The period when unlimited *personal* vengeance prevailed — if indeed it ever prevailed — thus recedes an immeasurable distance into the background.

If, then, ancient society must be regarded as composed only of autonomous households or clan-states, we immediately perceive that the fact has a twofold significance. On the one hand, it means peace within the clan. Indeed, *clan* and *peace* are equivalent terms.[5] The essential function of the

[1] Maine, *Ancient Law*, 250.

[2] "Nichts war den Germanen so fremd, als ein Strafrecht: statt dessen hatten sie ihren Volksfrieden, und dieser bestand weder in einer schützenden noch in einer drohenden Gewalt, — denn der freie Germane liess sich nicht schützen noch drohen — sondern in dem Antheile, den das ganze Volk durch Gericht und gemeine Guarantie an der Versöhnung erzürnter Freien nahm. Die älteste historische Grundlage des deutschen Criminalrechts ist daher eine so edle, wie sie kein anderes Volk gehabt hat, und die selbst unsre Philosophen nicht einmal unter den möglichen Grundprincipien eines Criminalrechts aufstellen — eine reine Versöhnungstheorie; sehr verschieden von der Vergeltungslehre: nur Unfreie konnten eine Strafe, als die von höherer Hand geübte Vergeltung, von ihrem Herrn empfangen": Rogge, *Das Gerichtswesen der Germanen*, 29–30.

[3] *Das Strafrecht der Germanen*, 197.

[4] See, for examples, *Das Strafrecht der Germanen*, 150, 185.

[5] Middle High German *sippe* (= enlarged family; also used for geschlecht = gens), Old High German *sibba*, Anglo-Saxon *sibb*, Gothic *sibja* = *verwandtschaft*, *pax*, *friede*, peace; cognate with Sanskrit *sabhā* = village-house or hall for public meetings: later = court-house. The village community was a localized household or *sibhā*, hence the name was transferred to the place where its members assembled. "Schon in den Veden findet sich vielfach erwähnt die *sabhā*, das Gemeindehaus. Sie ist der Versammlungsort der Dorfgenossen. Im Dorf aber wohnt ursprünglich vereint die zu demselben Geschlecht gehörende nähere Ver-

miniature state, without whose performance she cannot exist, is the preservation of order within her own limits.[1] The clan chief, or his prototype, the patriarch, thus becomes an official magistrate to whom belong jurisdiction and the duty of warranty or protection. Whoever injures a clansman violates his *mund*,[2] the peace of the clan; and, if need be, he may summon the clansmen to avenge the wrong. But if one of the kin be the aggressor, the chief and all the clan must bear the feud or produce the offender. The blood feud thus loses its individual character — it "rages" legally only between different clans.[3] The inter-clan feud assumes the dignity, so to speak, of international war.

wandtschaft, die *Sippe*. Sippe und sabhā sind sprachidentisch. Nun aber heisst in der Sūtraperiode *das Gerichtshaus: sabhā*": Leist, *Alt-Arisches Jus Gentium*, 360. Cf. Schrader, *Sprachvergleichung und Urgeschichte*, 394; Dahn, *Deutsche Geschichte*, I, 185; Schade, *Altdeutsches Wörterbuch*, II, 758; Lanman's *Sanskrit Reader*, 267. See also the next note.

[1] ". . . sibja bedeutet zugleich Sippe und Friede, zum deutlichen Beweise, dass ursprünglich der Rechtsschutz auf die Sippe beschränkt, der Ungesippe rechtlos, schutzlos war (hospes = hostis): nur der religiöse und sittliche Schild des Gastrechts, nicht der Schutz des Volksrechts, dessen der Fremde nicht fähig war, schirmte ihn. Innerhalb der Sippe freilich sollte unverbrüchlicher Friede walten: nicht im Waffengang der Fehde, nur im Rechtsgang sollte Streit der Gesippen geschlichtet werden, indem wohl von jeher das Haupt der Sippe den Bann, die Gesippen die Urtheilsfindung übten. Gewaltthat unter Gesippen galt als so arger Frevel wider Religion, Sitte und Recht, dass die Götterdämmerung, d. h. die innere Auflösung aller sittlichen Bande in der überhandnehmenden Verletzung des Sippefriedens wie vorbereitet so herbeigeführt geschaut wird": Dahn, *Deutsche Geschichte*, I, 185–6. Every social union has peace for its object: cf. the interesting remarks of Wilda, *Strafrecht*, 225–6; and Meyer, *Institutions Judiciaires*, I, 41 ff.

[2] The original meaning of *mund* seems to be *hand*, but in the laws it is used in this sense only in the plural: Schmid, *Glossar*, 634. This derivation identifies the word with the Roman *manus*, and it was first suggested by Grimm, *Rechtsalterthümer*, 447. Waitz, *Verfassungsgeschichte*, I, 55, regards *mund* as equivalent in meaning to *patria potestas*, and this was also suggested by Grimm. The view of Waitz is supported by Kohler, *Zeitschrift*, VI, 321; but Leist, *Alt-Arisches Jus Gentium*, 586, denies that the identity of the two institutions is universal among the Aryan peoples. Cf. also Stubbs, *Const. Hist.*, I, 181.

[3] Of course, the prosecution of the blood-feud might exist among the nearest kindred; but only, it would seem, in defiance, or in abeyance, of the authority of the clan-chief; and it entailed a curse upon the race. Such is the significance of the fate of the Attridæ as described in the Trilogy of Æschylos: see this worked

But if the extremely early origin of the clan-state places the moral condition of ancient society before us in a more favorable light — enables us to see that archaic men were not wholly given over to anarchy ; on the other hand, in the same fact must be sought the true explanation of the remarkably slow development of the modern conception of the national peace. The clan-state, generally speaking, is prehistoric. At the very dawn of history it has already been superseded by a much more expanded form of social organism. In the poems of Homer and in the earliest Italic legends the polis or city appears as the ultimate political unit. In the pages of Tacitus even the *pagus* or *gau-state*, composed of a group of local gentes, has already yielded to the tribe, or völkerschaft as the bearer of political sovereignty. Both polis and völkerschaft, though representing in some measure the principle of localization, are still held together by the double bond of kinship and religion, as was the clan from which each has been evolved ; but in the higher group the tie is weaker, often artificial. The clan represents that principle of exclusiveness, that spirit of race isolation and religious isolation, which constitutes the almost insuperable obstacle to political development in early Aryan society. Hence it is that the clan, long after it has ceased to be autonomous and has become a subordinate member of a higher organization, clings so tenaciously to the right of administering the blood-feud. Hence that remarkable struggle on the part of the state, extending in some instances far down into the historic period, to wrest from the kin exclusive jurisdiction over all violations of the peace as offences against herself. It is not a struggle between the state and the untamable passions of individual men ; but between a new and, so to speak, usurping authority and an old, once sovereign body, whose very constitution demands retribution for the blood of the slain, as a religious duty to the ancestral gods.

Let us now trace briefly the history of that struggle among

out by Leist, *Alt-Arisches Jus Gentium*, 423 ff.; and, on the clan-peace, cf. Dahn, *Deutsche Geschichte*, I, 185–6.

the principal Aryan peoples, but particularly as it is revealed in our old English laws.

(*b*). — *The Wergeld and Arbitration.*[1]

The first important encroachment upon the domain of the blood-feud was through the institution of the wergeld[2] and the resort to arbitration. And, though it is hazardous to speculate on a subject where so little is known, still it is natural to suppose that arbitration was first employed, voluntarily and occasionally, as a means of settling inter-clan disputes. Be this as it may, at the very beginning of positive history, the state is everywhere found engaged in elaborating a fixed tariff of compositions whose acceptance she endeavors to enforce. The original measure of the wergeld was the degree of anger, the state of mind, of the party entitled to vengeance.[3] "It was not the amount of injury that was sustained, much less the amount likely to prevent the recurrence of the offence. It was simply the lowest sum that, upon the whole, it was likely the aggrieved party would accept."[4] Everywhere the system of compositions shows traces of this original standard of measurement. For example, a thief taken in the act might be killed by the captor; but one subsequently apprehended, though guilty of a tenfold greater offence, had many chances for escape through the clumsy judicial procedure of primitive times. This is verified by the Saxon laws, though the difference in the severity of the punishment of the thief pursued and captured on the occasion of the theft, as compared with that of one taken

[1] An interesting chapter on the "Evolution of Peace" may be found in Lawrence, *Essays on Modern International War*, pp. 234–277. According to his view the final phase of development will consist in the superseding of international war by international peace. In general, see also Maine, *Ancient Law*, chap. X; *Ib.*, *Early History of Institutions*, chaps. IX, X, XII, XIII; Hearn, *Aryan Household*, chaps. XIX, XX.

[2] Wergeld = man-money. See Wilda, *Strafrecht*, 319; Grimm, *Rechtsalterthümer*, 650–3; Walter, *Deutsche Rechtsgeschichte*, I, 17; Leist, *Alt-Arisches Jus Gentium*, 296–7.

[3] Cf. Maine, *Ancient Law*, 365–7.

[4] Hearn, *Aryan Household*, 439.

after a delay is not uniform.[1] According to the Roman code of the Twelve Tables, the "manifest" thief could be condemned to death, if a slave, and to servitude, if a freeman.[2] But the "non-manifest" thief had only to refund double the amount stolen.[3] "The ancient law-giver doubtless considered that the injured proprietor, if left to himself, would inflict a very different punishment, when his blood was hot, from that with which he would be satisfied when the thief was detected after a considerable interval."[4] Only by slow degrees was the principle established that the punishment should be proportionate to the offence.[5] It is extremely interesting, moreover, to observe that this theory of the original standard of the wergeld finds actual expression in the words of one of the early German law-givers. In the code compiled about the year 643, the Lombard king, Rothar, declares that he has made the composition for each offence greater than it was with his ancestors in order that it may be accepted instead of the feud.[6]

The general introduction of the wergeld marks a significant epoch in the development of the peace administration. This stage has already been reached both by the Indic and Hellenic races when they first come before us. In the earliest sacred laws of the East not a vestige of the actual blood-feud remains; though its former existence is proved by elaborate

[1] Wihtraed, 25; Henry I, 12, § 1; Canute, II, 64: Schmid, *Gesetze*, 19, 444, 304. Cf. Maine, *Ancient Law*, 367; also the references to the laws in Schmid, *Glossar*, 555–8; and particularly Wilda, *Strafrecht*, 180 ff., 165–6.

[2] "Poena manifesti furti ex lege XII tabularum capitalis erat. nam liber verberatus addicebatur ei cui furtum fecerat . . . ; servum aeque verberatum e saxo deiciebant": Poste's *Gaius*, III, § 189, p. 454.

[3] "Nec manifesti furti poena per legem XII tabularum dupli inrogatur; quam etiam Praetor conservat": Poste's *Gaius*, III, § 190, p. 455.

[4] Maine, *Ancient Law*, 366–7.

[5] Cf. Leist, *Alt-Arisches Jus Gentium*, 314.

[6] "In omnibus istis plagis ac feritis superius descriptis, quae inter homines liberos eveniunt, ideo maiorem compositionem posuimus, quam antiqui nostri, ut faida, quod est inimicitia, post compositionem acceptam postponatur, et amplius non requiratur, nec dolus teneatur: sed caussa sit finita, amicitia manente": *Edictum Rotharis*, LXXIV: Walter, *Corpus Juris Germanici*, I, 693.

systems of composition and expiation, whose very instructive development has recently been traced by a master hand.[1] Among the Greeks of the Homeric Age the prosecution of the feud was condemned by moral sentiment, and the acceptance of blood-money instead seems to have been the general rule; but it was still optional on the part of the aggrieved.[2] The action of the state took the form of arbitration, though in what we should now style civil causes she may already have possessed a limited compelling authority. Of such arbitration a most interesting picture is preserved in the often cited description of the shield forged for Achilles by the god Hephæstos. Engraved upon the shield was the scene of a trial. "For two men contended for the ransom money of a slain man: the one affirmed that he had paid all, appealing to the people; but the other denied, (averring) that he had received nought." The arbiters chosen were the "gerontes," who "sat on polished stones in a sacred circle," and "in the midst lay two talents of gold to give to him who should estab-

[1] By Leist, *Alt-Arisches Jus Gentium*, 276–446, in comparison with the Græco-Italic systems. This work is a continuation of his *Gräcoitalische Rechtsgeschichte* (Jena, 1884).

[2] Thus, for example, Ajax tries to appease the wrath of Achilles, *Iliad*, IX, 632–9: Blackie, II, 300:

> "Man without mercy! when a son was slain, or a dear brother,
> Blood-money oft the kinsman moved, his just revenge to smother;
> The blood-stained man within his clan remains when he hath paid
> The atoning gold; the kinsman feels his vengeful ire allayed
> By a just fine. But thou — the gods within thy breast did place
> An evil and implacable wrath, because of a fair face,
> One only. Seven more fair than she, and many gifts beside,
> Here at thy feet we fling."

For a discussion of various passages in the Homeric writings relating to compositions, see Schömann, *Antiquities of Greece*, 45–7; Freeman, *Comparative Politics*, 270 ff., 480; Grote, *History of Greece*, II, 89–97; Jebb, *Homer: An Introduction to the Iliad and Odyssey*, 54; Gladstone, *Juventus Mundi*, 384 ff. The legendary material relating to the blood-feud, comprised in the dramas of Aeschylos, as already stated, is critically examined by Leist, *Alt-Arisches Jus Gentium*, 423 ff. See also the last named author's *Gräcoitalische Rechtsgeschichte*; Petersen, *Ursprung und Auslegung des heiligen Rechts bei den Griechen*, in *Philologus*, Erster Supplementband (1860), 153–212; Hermann, *Lehrbuch der griechischen Antiquitäten*, II, 112, IV, 369; Müller, *Aeschylos Eumeniden mit erläuternden Abhandlungen* (Göttingen, 1838), 126–151; Platner, *Notiones Juris et Justi ex Homeri et Hesiodi Carminibus*, 119 ff.

lish his claim among them."[1] This sum has been variously regarded as the reward of the judges,[2] the wager forfeited by the loser,[3] and as the wergeld and wager combined.[4] The first of these views, which is supported by the authority of Sir Henry Maine, is on the whole most in harmony with the spirit of primitive jurisprudence, though weighty objections to it have been advanced by Mr. Hearn.[5] The general character of the proceedings, however, is clearly revealed. It is an action for debt[6] growing out of an alleged composition for homicide, in which the representatives of the state, the "gerontes," appear as arbiters. And in Homeric Greece it is probable that the choice of the state as referee, at least in cases of blood-guiltiness, was entirely voluntary: she possessed as yet no power to compel a resort to her tribunals. The clan was still the chief executor of the peace.

In Roman jurisprudence there are few traces of the blood-feud or of its substitute the wergeld, save as mere survivals;[7] and it is a striking proof of Rome's comparatively early legal development, that both these phases have already been passed when even her traditional history begins.[8] But it was precisely at Rome that the gens or clan occupied a place unique in history. Even after the Twelve Tables, the *sacra gentilicia*[9] long remained of considerable social impor-

[1] *Iliad*, Book XVIII, ll. 501 ff.: Bohn *Trans.*, p 351.

[2] Maine, *Ancient Law*, 364. [3] Grote, *History of Greece*, II, 73.

[4] Hearn, *Aryan Household*, 434–5: "For my part, I hesitate to accept a meaning which implies such a singular competitive examination in judicial ability as that which assigns the two talents to the most popular judge; and the more so as the question raised — that of payment or non-payment — did not admit of the display of much ingenuity. The magnitude of the sum, too, even when allowance has been made for the exaggeration of poetry, seems to suggest that it was, or at least that it included, the blood-money for some person of rank, rather than it was a fee for judicial services."

[5] See the preceding note. [6] Schömann, *Antiquities of Greece*, 47–8.

[7] The earliest is a supposed law of Numa relating to involuntary homicide: Clark, *Early Roman Law*, 47–49, 60–61; Muirhead, *Historical Introduction to the Private Law of Rome*, 43, *note* 2, 52–3.

[8] Mommsen, *Römische Geschichte*, I, 148.

[9] Muirhead, *Historical Introduction*, 113–14; Hearn, *Aryan Household*, 118, 122 ff.; Maine, *Ancient Law*, 6, 185–6.

tance. And the forms of Roman judicial process for many centuries bore witness to their origin in an age when violations of the peace were not thought of as injuries to the state, and when self-help was the only means for preserving order.

The most interesting examples of the archaic ceremonial of Roman law are preserved in the *legis actiones*. The *legis actio sacramenti*,[1] "the undoubted parent of all the Roman actions, and consequently of most of the civil remedies now in use in the world,"[2] is the exact analogue, with regard to the point under consideration, of the Homeric trial just considered. But here the function of the state as arbiter is much more developed. Here the prætor, before whom the issue is joined, and the decemviral court, before which the final trial occurs, are the agents of the state, as were the "gerontes" in the former instance. The action is for the recovery of land or other property and takes the form of a wager. It is especially interesting as evidence, that early judicial procedure grew out of and preserved the semblance of a personal quarrel. In the various steps of the sacramental action is preserved in symbolical form the whole history of the mode of settling disputes: the violent struggle, the casual interference of a third party — in this case the prætor, the resort to an arbiter — the decemviral court, and the deposit of a *sacramentum* to be forfeited by the loser; the latter foreshadowing the modern *sanction* of the law.[3]

Many other traces of self-redress are preserved in the Roman law. Originally "if a man had sustained from another any serious personal injury, he was entitled to demand an eye for an eye, and a tooth for a tooth"; and "the nearest agnate was the person to whom the duty of exacting this vengeance pertained."[4] If a man's goods were stolen and "he

[1] Poste's *Gaius*, IV, §§ 13–17, pp. 495–7.

[2] Maine, *Early History of Institutions*, 252. See his discussion of the sacramental action, *Ib.*, chap. IX; *Ancient Law*, 362–5.

[3] Cf. Hearn, *Aryan Household*, 435–6; Poste's *Gaius*, 497–8; Hadley, *Roman Law*, 78–85; Muirhead, *Hist. Int. to Private Law of Rome*, 186–97; Lange, *Römische Alterthümer*, I, 168, 356, 368; Puchta, *Institutionen*, I, 469–74; Rudorff, *Römische Rechtsgeschichte*, II, 77 ff. [4] Hearn, *Aryan Household*, 440.

suspected that they were in another man's house, he might enter and search that house in a certain specified manner,[1] without any search warrant or other authority. If he then and there found the stolen goods, he might proceed as if the thief had been taken *flagrante delicto*." [2] And a similar right of private search was authorized by the Attic law.[3] By the *legis actio per pignoris capionem*, or distress, the creditor, without the intervention of an officer, was allowed, in certain specified cases, to distrain his debtor's goods, even in the latter's absence, provided "the distreinor used a set form of words." [4] Similarly by the *legis actio per manus injectionem*, or arrest, according to a provision of the Twelve Tables, the creditor was his own constable in an execution for debt, and he seized the person and not the property of the debtor. Thus, in the case of a nexal debtor, that is where the obligation was engendered by the primitive *nexum* or contract *per aes et libram*, the creditor might seize the delinquent after thirty days grace and cast him into his own prison,[5] provided he first took the debtor before the prætor to enable him, if he could, to establish before five witnesses the *liberatio nexi* or payment of the debt; and at the end of sixty days the debtor *capite*

[1] Poste's *Gaius*, III, § 192, p. 445: Prohibiti actio quadrupli ex edicto Praetoris introducta est. Lex autem eo nomine nullam poenam constituit: hoc solum praecepit, ut qui quaerere velit, nudus quaerat, linteo cinctus, lancem habens; qui si quid invenerit, iubet id lex furtum manifestum esse. "Prevention of search renders liable to fourfold damages, a penalty which the edict of the prætor first ordained. The Twelve Tables inflicted no penalty for such an offence, but directed that the subsequent searcher must be naked, only wearing a girdle, and carrying a platter in his hands, and made the ensuing discovery of stolen goods a detection of theft in the commission." [2] Hearn, *Aryan Household*, 441.

[3] . . . "und selbst im dinglichen Rechtsgebiete begegnet sie (Nothwehr) uns noch unmittelbar in der alterthümlichen Form der Haussuchung, welche derjenige, der entwendetes Gut bei einem Mitbürger versteckt glaubte, in Person, nur, um seinerseits keinen Verdacht zu erregen, möglichst entkleidet vornehmen musste": Thalheim, in Hermann's *Lehrbuch der Griechischen Antiquitäten*, II, 112.

[4] Poste's *Gaius*, IV, §§ 26–29, pp. 510 ff. Cf. Muirhead, *Hist. Int. to the Private Law of Rome*, 214 ff., 51; Rudorff, *Römische Rechtsgeschichte*, II, 86–7; Puchta, *Institutionen*, I, 479.

[5] On the private gaols of the usurers, see *Livy*, VI, 36; and Poste's *Gaius*, p. 508.

poenas dabat — paid the forfeit with his life or was sold into slavery.[1] The law respecting a judgment debtor was the same, unless a *vindex* appeared to challenge the validity of the judgment. The court declared the right, but expected the plaintiff, under her sanction, to arrest the debtor in execution of her decree.[2] The right of the creditor to imprison his nexal debtor, often exercised with great cruelty, seems to have survived until the enactment of the *lex Poetilia Papiria*,[3] about the year 428 U.C. On the other hand, the judgment debtor was liable to private arrest and private imprisonment until the first century before the Christian era; and execution against his person was still possible in the age of Justinian, though execution against his estate had long since become the general rule.[4] Moreover, as late as A.D. 389, a person who believed himself to be the owner of lands or other property, might, with virtual impunity, forcibly dispossess the holder. In that year it was interdicted under severe penalty by an imperial constitution;[5] and thus a final blow was struck "by the Roman legislator at the archaic form of remedial procedure — private violence or self-redress."[6]

But already a new race was taking possession of the Roman

[1] The provisions of the Twelve Tables are preserved by Aulus Gellius, *Noct. Att.*, XX, 1, §§ 41 ff. The best discussion of the *manus injectio* is given by Muirhead, *Hist. Int.*, 157–8, 201–17, whom I have here followed. His searching criticism goes to show that the passage in the Twelve Tables relates to *nexal* as well as *judgment* debtors. Cf. also on the *manus injectio* and personal execution, Puchta, *Institutionen*, I, 550 ff.; Rudorff, *Römische Rechtsgeschichte*, I, 105, II, 85; Hearn, *Aryan Household*, 445–6; Maine, *Early History of Institutions*, 257.

[2] *Gaius*, IV, § 21: "The procedure was as follows: the plaintiff said, 'whereas you have been adjudged or condemned to pay me ten thousand sesterces which you fraudulently have failed to pay, therefore I arrest you as judgment debtor for ten thousand sesterces,' and at the same time laid hands on him; and the debtor was not allowed to resist the arrest, or defend himself in his own person, but gave a vindex to advocate his cause, or, in default, was taken prisoner to the plaintiff's house, and put in chains": Poste, p. 506.

[3] Poste's *Gaius*, p. 348. Cf. Muirhead, *Hist. Int.*, 53, 160–1.

[4] Cf. Muirhead, *Hist. Int.*, 96, 160–1, 212, *notes;* Hearn, *Aryan Household*, 446; Hunter, *Roman Law*, 875; Poste's *Gaius*, p. 348.

[5] By a constitution of the emperors Valentinian, Theodosius, and Arcadius: *Cod.* 8, 4, 7. Cf. Poste's *Gaius*, p. 465.

[6] Poste's *Gaius*, p. 466.

world, whose social condition was more archaic than was that of Rome in the period of her earliest tradition. In the Commentaries of Caesar our German ancestors are seen in the process of transition from the pastoral to the agricultural life.[1] Here and there the ultimate political unit seems to have been the tribe or völkerschaft;[2] elsewhere even this degree of development had not yet been reached, political sovereignty being still vested in the gau-state, — a union of *localized* gentes or *sippen.* Nowhere, however, does the independent clan-state appear.[3] And in the age of Tacitus, as we have already seen, the gau has everywhere taken its place as a subordinate member of the tribe.[4] But the tie of kinship, though beginning slowly to relax, still survives as a strong political bond; and hence for ages after settled life began, the ancient family or gentile unions exerted a hindering influence on the development of society.[5]

[1] Cæsar, *De Bell. Gall.*, VI, 22: Agriculturae non student. . . . Neque quisquam agri modum certum aut fines habet proprios; sed magistratus ac principes in annos singulos gentibus cognationibusque hominum, qui una coierunt, quantum et quo loco visum est agri attribuunt, atque anno post alio transire cogunt. On the Suevi, *Ib.*, IV, 1. In general on the Germans as described by Cæsar, see Meitzen, *Der Boden des preussischen Staates*, I, 344; Waitz, *Verfassungsgeschichte*, I, 92–102; Thudichum, *Der Altdeutsche Staat*, 91 ff.; Stubbs, *Const. Hist.*, 1, 12–17; Maurer, *Einleitung*, 3, 5; and especially the remarkable criticism of Hanssen, *Agrarhistorische Abhandlungen*, 77 ff., 91.

[2] Probably the *civitas* of Cæsar: *De Bell. Gall.*, I, 12; IV, 3; VI, 23, etc.

[3] This is the view of Dahn: "Zwar liegt die Zeit des Staates der Einzelsippe vor aller geschichtlichen Kunde, und sogar der Staat der verbundenen Sippen ist in den frühesten Berichten über germanische Verfassung, bei Julius Cäsar, ein halb Jahrhundert vor Christus, fast schon vollständig ersetzt durch den Gaustaat (pagus) der verbundenen Gemeinden; nicht mehr blosser Geschlechterzusammenhang, sondern die gemeinsame Siedelung bildet die Grundlage des Staatsverbandes": *Deutsche Geschichte*, I, 184. Cf. *Ib.*, pp. 187, 190.

[4] See Tacitus, *Germania*, 10, 12–15, 19, 25, 30, 37, 41, for the principal passages relating to the *civitas* or state in its relation to the *pagus* or gau (hundertschaft) and the *vicus* or mark (localized *sippe*).

[5] Cf. Inama-Sternegg, *Die Ausbildung der grossen Grundherrschaften in Deutschland*, 6-24; and Dahn, *Deutsche Geschichte*, I, 185 ff. In general, on the survival of the blood-bond, see Cæsar, *De Bell. Gall.*, VI, 22, who states that land was granted *gentibus cognationibusque;* and Tacitus, *Germania*, c. 7, who says the army was organized according to *familiae et propinquitates:* Schmid, *Glossar*, 626; Waitz, *Verfassungsgeschichte*, I, 76 ff., *notes;* Maurer, *Einleitung*, 3, 4, 13;

Speaking broadly, throughout the entire German world, when history dawns, the state or *volksverband* has already gained the acceptance of her intervention in clan disputes. In practice, if not in theory, the unrestricted blood-feud is extinct. In its place, we find a vast system of compositions and penalties which the clan is allowed to administer, but under some restraint, however feeble, of a law superior to her own.[1] A new morality, a higher ethics, is beginning to transform the popular conception of the peace. Private vengeance is slowly assuming the character of public vengeance.[2] Here and there the wronged party may still be entitled to self-redress; but, if he appeal to the state, he may exercise the right only when the blood-money is not paid by the transgressor in accordance with her decree.[3] These generalizations

Thudichum, *Der altd. Staat*, 35; Walter, *Deutsche Rechtsgeschichte*, I, 17–20; Laveleye, *Primitive Property*, 105–6; Hanssen, *Agrarhist. Abhandl.*, 87; Dahn, *Urgeschichte*, 103–4; Arnold, *Deutsche Urzeit*, 340; Kemble, *Saxons*, I, 56 ff.; Inama-Sternegg, *Deutsche Wirthschaftsgeschichte*, 73 ff.; Wilda, *Das Strafrecht der Germanen*, 125 ff.

[1] Thus Tacitus, *Germania*, c. 21, describes the feud and compositions: "Suscipere tam inimicitias, seu patris, seu propinqui, quam amicitias, necesse est: nec implacabiles durant. Luitur enim etiam homicidium certo armentorum ac pecorum numero, recipitque satisfactionem universa domus: utiliter in publicum; quia periculosiores sunt inimicitiae juxta libertatem."

[2] Wilda, *Strafrecht*, 167, 189.

[3] In the earliest English laws acceptance of the wergeld, when tendered, seems to have been obligatory. Opinions differ as to the earliest Teutonic usage. Thus Siegel, *Geschichte des deutschen Gerichtsverfahrens*, 9 ff., holds that choice between the feud and judicial action for recovery of the wergeld rested wholly with the aggrieved. Rogge, *Das Gerichtswesen der Germanen*, 5–7, 19–25, likewise maintains that the wronged party might take the law into his own hands; but if redress were sought through process of law, then choice between payment of the wergeld and the feud belonged wholly to the transgressor: the court could not enforce the payment of composition. On the other hand Wilda, the principal authority on early criminal law, declares that the private (clan) feud was practically extinct. His great work is an elaborate defence of the relatively high development of the peace-jurisdiction of the primitive Germanic state. See *Strafrecht*, 160 ff., 189, 184 ff., 197. Substantially in agreement with Wilda are Wächter, *Beiträge zur deutschen Geschichte*, 41 ff.; Waitz, *Das alte Recht*, 185–8; *Ib.*, *Verfassungsgeschichte*, I, 70 ff., IV, 431 ff.; and Dahn, *Deutsche Geschichte*, I, 227–40, particularly p. 238, though he is more conservative respecting the early victory of the state over the clan. The provisions relating to the feud and compositions in each of the codes

are fully sustained by the evidence of the folk-laws. Nowhere among the Germanic peoples does the clan-feud appear in so primitive a form as in the Icelandic *Gragas*, the earliest code of the Scandinavian North.[1] Nowhere, says Wilda, is the identity between manslaughter and vengeance so clear, nowhere is the right to slay the offender before judgment so extended, as in the Gragas; therefore it is all the more interesting to note that even here the execution of vengeance is kept within certain limits, which are exactly defined by the law.[2] On the other hand, the oldest text of the *Lex Salica* is silent as to private vengeance before legal process; but every one is provided with adequate means in the form of law for securing such reparation as Germanic custom approves.[3]

The earliest English codes reveal the state already engaged in developing and enforcing a tariff of compositions, minutely graduated both according to the rank and dignity of the aggrieved and according to the character of the offence. Every limb, every joint, every feature of the human body has its assessed value.[4] Moreover, in all cases the state, as a

of the Continental Germans are conveniently summarized by Davoud-Oghlou, *Histoire de la Legislation des anciens Germains*. The *faida* is especially prominent in Lombard laws: *Ib.*, II, 13–15. Cf., in general, Grimm, *Rechtsalterthümer*, 646 ff.; Walter, *Deutsche Rechtsgeschichte*, I, 18 ff.; Arnold, *Deutsche Urzeit*, 339 ff.; Schulte, *Reichs- und Rechtsgeschichte*, 30–31, 347; Meyer, *Institutions Judiciaires*, I, 24 ff.

[1] *Gragas* = German *Graugans*. This compilation is one of the most important sources used by Wilda, who gives special attention to the various Scandinavian codes. See his general discussion of them, *Das Strafrecht der Germanen*, 7–61.

[2] See the proofs collected in his *Strafrecht*, 160–62.

[3] Waitz, *Das alte Recht*, 186–7. Certain passages in later additions to the *Lex*, which have been regarded as proofs that vengeance was optional on the part of the aggrieved, are shown by Waitz to be capable of a contrary interpretation; *Ib.*, 186, *note* 2. See Behrend, *Lex Salica*, c. XLI–III, LIV, LXII–III, pp. 52–6, 71, 79–80, for the principal passages relating to homicide. The greater portion of the entire code is concerned with compositions.

[4] See especially the Laws or Dômas of Æthelberht, consisting wholly of a tariff of compositions arranged in ninety paragraphs: Schmid, *Gesetze*, pp. 2–10; Thorpe, *Ancient Laws*, I, 2–25. Very similar are the codes of Hlothar and Eadric, Wihtræd, Ine, and even those of Ælfred: Schmid, *Gesetze*, 10–58, 98–105; Thorpe, *Ancient Laws*, I, 26–43, 91–101, 102–51. For the three systems of wergeld recognized in the early English codes — those of Wessex, Mercia, and East

recognition of her sanction of the remedial action of the clan, demands that a portion shall come into her hands. This is the *wite* of the Saxon laws,[1] called also *fredum*,[2] from "*frith*, peace, and *bannum*, from its proclamation (*bannan*)."[3] The wite is not the state's share in the composition. It is its fee, the direct counterpart of the two talents of the Homeric procedure and the sacramentum of the Twelve Tables. It is a survival, in fact, of the price of arbitration.[4]

Anglia, see Schmid, *Gesetze, Anhang* VII, 394–99, and *Glossar*, 675; Thorpe, *Ancient Laws*, I, 186–91, and Index. In general, on the old English compositions, see Schmid, *Glossar*, at *fyht-wite, wer-gild, wite, etc.;* Kemble, *Saxons*, I, 267–88; Forsyth, *Trial by Jury*, 48–50, 52, 61; Lea, *Superstition and Force*, 13–20; Freeman, *Comp. Pol.*, 271–78; Konrad Maurer, *Krit. Ueb.*, II, 30 ff., III, 26 ff.; Davoud-Oghlou, *Histoire de la Legislation des anciens Germains*, II, 294–98, 344–54; *Essays in Anglo-Saxon Law*, 124, 138, 144, 166–7, 279; Wilda, *Strafrecht*, 319, 386 ff.; Leo, *Rectitudines*, 180 ff.; Glasson, *Histoire du Droit et des Institutions de L'Angelterre*, I, 304 ff.

[1] For *wite*, see Schmid, *Glossar*, 679. The *wite* was similar to the Danish *lahslit: Essays in Anglo-Saxon Law*, 280–81.

[2] Anglo-Saxon *frith*, cognate with Old High German *fridu*, Middle High German *vride*, Modern German *friede*, mediæval Latin *fridus* or *fredus:* see Schade, *Altdeutsches Wörterbuch*, I, 224; Kemble, *Saxons*, I, 270, *note;* Maine, *Ancient Law*, 365; Grimm, *Rechtsalterthümer*, 657; Schmid, *Glossar*, 584.

[3] From Anglo-Saxon *bannan*, to proclaim or summon: Schade, *Altdeutsches Wörterbuch*, I, 39; Kemble, *Saxons*, I, 270. According to Sohm, *Reichs- und Gerichtsverfassung*, 107 ff., the bannus is to be carefully distinguished on the one hand from the fredus, and on the other from the faidus or blood-money. The bannus is the penalty for the breach of the peace imposed by the authority of the magistrate — *Amtsgewalt;* the fredus is the penalty paid to the state for a breach of the people's peace — of *Volksrecht*. The bannus is thus the counterpart of the entire composition, which consists of faidus and fredus, not of the fredus alone. But with the development of magisterial authority the bannus absorbs the fredus — it enters into the system of composition, and both are comprehended by the later term *Gewedde*. Thus Sohm, in effect, recognizes two stages in the evolution of the public peace: the folkspeace, for the violation of which the fredus is paid; and the king's (magistrate's) peace, for the violation of which the bannus is exacted. Cf. Müllenhoff's *Glossary*, in Waitz, *Das alte Recht*, 282; Meyer, *Institutions Judiciaires*, I, 41 ff.; Wilda, *Strafrecht*, 319; Walter, *Deutsche Rechtsgeschichte*, II, 381–4.

[4] *Wite*, German *Wette*, a bet, suggests the very essence of the *Legis Actio Sacramenti*.

The general term in old English law for the composition paid to the aggrieved is *bot;* that portion of the *bot* paid for minor breaches of the law or the peace — those of the first class, perhaps — was *mund*, peace-money in the narrow sense;

But the Saxon laws did not absolutely prohibit the feud; it was still possible long after the Conquest for a private person legally to resort to it in default of payment of the wergeld. The general aim was to restrain private vengeance until the public tribunals had passed judgment on the offender, and the composition had been refused. After that the clansmen were still the executors of the peace. In this spirit are the enactments of Ine, Ælfred, Eadmund, and the so-called laws of Henry I, a compilation probably of the twelfth century.[1] It is interesting also to note the persistent survival of the responsibility of the *kin* in the blood-feud. Under Æthelberht (568–616) and Ælfred (871–901) a portion of the wer must still be paid by the *magan* or kinsmen.[2] Not until Eadmund (940–946) were the relatives entirely relieved of such liability, on condition of severing all connection with the transgressor.[3] But this law seems to have become a dead letter; for the liability of the *magan* is recognized in the legislation of Æthelred and Canute;[4] but in the laws of Henry I the enactment of Eadmund was expressly restored.[5]

that portion paid for manslaughter was the wergeld. The corresponding general term for the fee of the state was *wite;* and, at least in later times, that portion thereof corresponding to the *mund* was sometimes called *fihtwite;* and the part corresponding to the *wergeld* was called *manbot*, and went, usually, to the lord, when paid for the death of a dependent. But there were many special terms used for the fines due the state. Cf. Konrad Maurer, *Krit. Ueb.*, III, 45 ff.; Schmid, *Gesetze*, 628, 679; Wilda, *Strafrecht*, 319, 386 ff.

[1] Ine, 8, 9; Ælfred, 42; Eadmund, II, 1; Henry I, 82, § 1, 2; 83, § 1, 3: Schmid, *Gesetze*, 24, 42, 94, 176, 479–80. On Ælfred's laws, see Leo, *Rectitudines*, 180–81.

[2] Æthelberht, 23; Ælfred, 27: Thorpe, *Anc. Laws*, I, 8, 78; Schmid, *Gesetze*, 4, 86.

[3] Eadmund, II, 1: Thorpe, *Anc. Laws*, I, 248; Schmid, *Gesetze*, 176.

[4] Æthelred, VIII, 23; Canute, I, 5, § 2: Schmid, *Gesetze*, 246, 256.

[5] Henry I, 88, § 12: Schmid, *Gesetze*, 484. However, as late as the reign of Edward IV, we find an instance of trial by battle and of composition for the blood of the slain: Freeman, *Comp. Pol.*, 278. The celebrated *peine forte et dure* of the English law long marked a survival of the right of self-redress. "If a prisoner refused to plead, the court had no authority to try him; and a severe course of treatment, which subsequently degenerated into a horrible torture, was used to extort the required consent": Hearn, *Aryan Household*, 434. The reader will also remember the theory of Brentano, that the gilds, particularly the frith-

(*c*). — *The Frith or Folk's Peace.*

Few things in the history of legal ideas are more remarkable than this protracted struggle of the state with the clan for supremacy: her cautious, almost painful, advance from the position of a mere referee to that of a sovereign, clothed with power to punish all transgressions of right or of the peace as offences against herself, requiring centuries of patient watchfulness for its accomplishment. Gradually, however, the conception of a common public peace — the English *frith*, the *volksfriede* of the German writers — was evolved. Various were the expedients and makeshifts, some of them as curious as they are instructive, through which the state sought to eke out and expand her authority. Of these the more important may be conveniently arranged in three groups.

The first group comprises a great variety of rules which are prescribed in the ancient law-books and have as their common object *the restriction of the sphere of self-redress.* By these are carefully defined the persons by whom, the times when, and the circumstances under which, reparation may be sought.[1] Savage forms of punishment are forbidden. Thus the avenger may not poison or torture his foe.[2] If he slay him in sudden anger or in defence of his life or his goods, he must not conceal the deed. The law requires that he shall proclaim it before his neighbors, unless he would "make

gilds, arose in the necessity of supplementing by artificial association the family (clan) compact, at a time when it was in process of dissolution, and when the authority of the state was not as yet adequate to take its place: *The Origin of Gilds*, lxix, lxxiv, lxxix, lxxxvi, ci ff. Cf. Kemble, *Saxons*, I, 258, 231. Brentano's view is criticised by Gross, *Gilda Mercatoria*, 8, *note* 2. Cf. Spencer, *Principles of Sociology*, II, 468 ff.; Ochenkoski, *Englands wirthschaftliche Entwickelung*, 54 ff.; Winzer, *Die deutschen Bruderschaften des Mittelalters*, 24 ff.; Hartwig, *Untersuchungen über die ersten Anfänge des Gildenwesens*, 163. See also Seligman, *Two Chapters on the Mediæval Guilds of England: Publications of the Am. Econ. Association*, II, 397–8: "The dissolution of the bond of kinship furthered, but certainly did not produce the early guilds."

[1] Wilda, *Strafrecht*, 162. [2] Wilda, *Strafrecht*, 158.

room for an oath on behalf of the dead man, that his kindred may exculpate him";[1] or even that he shall formally accuse the body of the dead in open court, in order to facilitate the peaceful establishment of his own innocence.[2] In like spirit the *Lex Ripuaria* provides that the man who commits a justifiable homicide shall publicly expose the body and watch it for a certain number of days, to see if the kindred of the slain will come to challenge him for the deed.[3] So also the state strove in various ways to render the degree of vengeance commensurate with the offence. For example, the exact words which shall be regarded as mortal insults are enumerated in the statutes;[4] a blow may be avenged, so long as the mark of it remains;[5] the thief or the ravisher, surprised in the act, may be slain on the spot; but if the blood of the aggrieved have time to cool, then he may only seize and bind the malefactor and carry him before the court for trial.[6] In the North, says Grimm, if a violent house-breaker be slain in the act, his death remains without compensation, provided the feet of the corpse fall within and the head without the house-yard (hofzaun); but, on the contrary, if the feet fall without and the head within, then the slayer is responsible for the blood-money.[7] Another Scandinavian law makes the slayer liable for a special fine, if at the first meeting of the court (ding) after the event, he provoke the wrath of his adversary by tendering the wergeld in a voice loud enough to be heard throughout the entire assembly; while a similar

[1] Ine, 21: Thorpe, *Ancient Laws*, I, 117. Cf. also Ine, 35: Thorpe, *Anc. Laws*, I, 125. The *Gragas* requires that public announcement shall be made even when an outlaw — *Waldgänger* — is slain: Wilda, *Strafrecht*, 159, 162–3.

[2] Sachsse's *Sachsenspiegel*, I, art. 69, p. 114: "We ok enen doden man. oder enen gewundeden man geuangenen uor gerichte uort. unde ene to eneme uredebrekere bereden wil mit kamp. oder ane kamp. en beredet he sin nicht. men seal ouer ene richten na uredes rechte." Cf. the extracts from the Scandinavian codes in Wilda, *Strafrecht*, 163.

[3] *Lex Ripuaria*, Tit. LXXVII: Walter, *Corpus Juris Germ.*, I, 190. Cf. Wilda, *Strafrecht*, 159.

[4] Wilda, *Strafrecht*, 161.

[5] Wilda, *Strafrecht*, 161.

[6] *Ib.*, 165–6.

[7] Grimm, *Rechtsalterthümer*, 628. See similar examples in Wilda, *Strafrecht*, 165.

penalty must be paid if he neglect for more then twelve months to offer satisfaction.[1] By these and various other devices, many of them resting upon such simple principles of justice and humanity as would most readily gain the assent of primitive men, was the clan-feud circumscribed, and the habit of appeal to a higher jurisdiction gradually established.

A more important means for the attainment of the same end was found in the *differentiation of classes of offences.* The first class comprised minor violations of right, for which the state began to insist on the acceptance of composition in all cases, — a custom which public sentiment had, doubtless, long encouraged. In the second class were embraced graver offences against the peace, such as blood-guiltiness. The offender in such cases was regarded as an outlaw; private vengeance was not forbidden, but the feud gained a new sanction from the state, which gave its aid to the clan in the prosecution. A third class comprehended crimes, such as treason, which especially imperilled the existence of the state herself. These offences she insisted on taking entirely into her own hands, leaving to the clansmen only the duty of aiding in the apprehension of the transgressor.[2] This classification, which gradually came into existence, determined the course of future development: when the first class had absorbed all of the cases originally contained in the second, and the third had absorbed the first, then was the system of self-help entirely superseded by public law; private wrongs or delicts had become public crimes.

Finally, by a third process, co-operating with those already described, the surviving jurisdiction of the clan was broken up, and, in the end, handed over, as it were piecemeal, to the control of the state. This process, beginning in a very early

[1] Wilda, *Strafrecht*, 182.

[2] For this classification and a masterly discussion of the *Fehde*, see Konrad Maurer in *Kritische Ueberschau*, III, 26 ff. Compare the differentiation of crimes and offences as seen in the ancient Indic laws: Leist, *Alt-Arisches Jus Gentium*, 276–384. Especially interesting is his discussion of the evolution of *murder* from the original crime of *parricide: Ib.*, 323, 443, 445, etc.

period, consisted in the gradual *establishment of so-called higher peaces.* Certain places, times, or persons, even certain objects, such as the plough of the husbandman, were in a manner 'sequestrated' from the operation of the common law and placed under the sanction of superior bot and wite. Thus there was a special house-peace,[1] a church-peace,[2] a forest-peace,[3] a peace for the palace, even for the temporary residence of the king.[4] In like manner, during seed-time and harvest, market days and festivals, civil moots and the gathering of the host, a truce was declared: the clansman must forego the feud or seek it at his peril. Moreover, the orphan, the widow, and the priest were each shielded from violence by heavy penalties. But the higher peace is especially interesting in its relation to the king. He was its beneficiary in two ways. In the double capacity of folk-leader and official magistrate, not only was his personal safety and that of his entire household hedged about by the strongest guaranties, but the administration of the higher peaces themselves was largely entrusted to him and his reeves. Later, as in England with the rise of the feudal thegnship, all places, all times, and all persons were gradually brought within his jurisdiction. And thus the higher peaces, many of which were in their origin exceptional and artificial, representing at once the encroachment of the folk upon the clan and that of the magistrate upon the folk, appear as an important — perhaps

[1] See Schmid, *Glossar*, 607, for references to passages in the old English laws from which the house-peace may be inferred. Cf. Wilda, *Strafrecht*, 241–5; Dahn, *Deutsche Geschichte*, 251.

[2] A. S. *ciric-frith*, later, *ciric-grith.* Cf. Æthelberht, 1; Ælfred, 2, § 5; Eadgar, II, 5; Æthelred, VI, 14, VIII, 1, 3, 4: Schmid, *Gesetze*, 2, 72, 188, 230, 242–4; and Schmid's *Glossar*, 544, 584–5. Cf. Wilda, *Strafrecht*, 248–53.

[3] Meyer, *Institutions Judiciaires*, I, 42.

[4] Tam longe debet esse pax regis a porta sua, ubi residens erit, a quatuor partibus loci illius, hoc est: tria miliaria, et III quarentinae, et IX acrae latitudine, et IX pedes, et IX palmae et IX grana ordei. Multus sane respectus esse debet, ac multa diligentia, ne quis pacem regis infringat, maxime in ejus vicinia: *Leges Hen. Primi*, 16: Schmid, *Gesetze*, 446. Cf. *Ib.*, *Anhang* XII and *Anhang* IV, 9, 15, pp. 410, 384–5.

the most important — expedient by which the national peace was transformed into the peace of the king.[1]

(*d*). — *The King's Peace.*

In these various ways the *frith* or national peace came into existence. But what was the exact significance of the term peace? What idea did it convey to our predecessors? A great authority has thus expressed the answer which the sources afford: "The bond which held individuals together, the legal environment (zustand) in which they lived, which surrounded them, was the peace according to the German conception. The peace is the relation in which all stand whilst and in so far as all continue in the union and under the law upon which the community rests. Whoever acts contrary to this commits a breach of the peace. A breach of the peace is unright; the violation of right is a breach of the peace. Whoever thus breaks the peace, though in respect to a single individual, does violence to all; for he violates that sacred ordinance (ordnung) under which all stand and through which alone their union has a meaning."[2]

How utterly incomprehensible to the archaic mind would have been the conception embodied in this definition! Already, however, when our ancestors settled in Britain, they were beginning to be familiar with it. And the way in which the peace is constantly spoken of in the law-books is curious and instructive. It appears as a vivid, almost objective reality. The very distinctness of the conception shows that it was materialized, viewed in a concrete form. It is another example of the psychological paradox of the Middle Ages, brought out by Mr. Bryce in his discussion of the theory of the Holy Roman Empire.[3] The most far-reaching generalizations with a tendency to embody them in concrete

[1] On the higher peaces, see further Stubbs, *Const. Hist.*, I, 181, *note* 2; Wilda, *Strafrecht*, 224–64; Meyer, *Institutions Judiciaires*, I, 42–3; Poste's *Gaius*, p. 466; Dahn, *Deutsche Geschichte*, I, 250–1.

[2] Waitz, *Deutsche Verfassungsgeschichte*, I, 391–2.

[3] *Holy Roman Empire*, 89–121.

symbols constitutes a strange and ever present contradiction. The conception of a wrong to the individual as primarily a crime against the state, implies an immense mental stride on the part of the clansman.

An illustration of this tendency to the concrete is found in the history of the king's relation to the National Peace. For everywhere throughout the Aryan world may be discerned two tendencies, often overlapping and gradually supplementing each other. The first is the tendency already described: with the dissolution of the gentile bond and the consequent expansion of the state's dominion, the clan-peace slowly yields to the common peace of the folk — the *mund* becomes absorbed in the *frith*. On the other hand, as the source of all power is vested more and more in the magistrate, in a monarch, the frith becomes transformed into the peace of the king.[1] Nowhere can the operation and results of this dual process be more instructively studied than in the growth of the English kingdom. Previous to the West Saxon empire of the tenth century, the people themselves, and not the king, were the source of justice. The peace was the people's peace; the king was only its guardian and executor. But the position of the king as the dispenser of justice and guardian of the peace was from a very early period important and distinctly recognized. At least a portion of the *wite* belonged to him;[2] and it rested with him to accept a commutation in money for even the most heinous crimes against the state.[3] Moreover, from the very beginning, there was a tendency to confound the state with the personality of the king; to make him a visible symbol of the commonwealth. By degrees, as the petty tribal states were absorbed in the

[1] In this connection should be read the section in Sohm's *Reichs- und Gerichtsverfassung*, I, 102–46, on "Volksrecht und Amtsgewalt." He holds that the process by which the administration of the peace was vested in the king or magistrate was a part of the tendency by which the customary law, *jus civile*, was superseded or supplemented by the law of the magistrate, Amtsrecht or *jus honorarium*.

[2] See, for example, Æthelberht, 6, 9; Hlothar and Eadric, 11, 12, 13, 14; Ine, 23, 27: Schmid, *Gesetze*, 2, 12, 14, 30, 32.

[3] Stubbs, *Const. Hist.*, I,.179–81; Konrad Maurer, *Krit. Ueb.*, III, 51.

so-called Heptarchic kingdoms, and these, in their turn, were consolidated into one empire, the prerogatives of the monarch grew and his attributes expanded. By the tenth century, he was not only the national landlord and the source of honor, but the source of justice as well. The peace was the king's peace, just as the old folk-land had become practically *terra regis*. Nay, as if to make the personification consistent, the national peace was spoken of indifferently as either the *frith* or the *mund* of the king.[1]

This new theory that the peace belonged to the king and not to the people, had a curious and disastrous consequence. After the Norman Conquest it was held by the lawyers that the reign of law ceased with the death or deposition of the sovereign. During each interregnum crime and violence and all forms of anarchy ran riot and there was no power to punish. The king was dead and the law had died with him. Edward I was the first monarch who reigned before he was regularly crowned: and even in his case there was an interregnum of four days. Not until many reigns later was the doctrine that the king never dies fully established.[2]

In England as elsewhere it was in the lower range of legal procedure that the weakness of the royal authority was longest revealed. This fact may be well illustrated by noticing briefly a topic to which Sir Henry Maine has devoted two of the most valuable chapters of his *Early History of Institutions*[3] — the law of pignoration or distress. The right of the

[1] Konrad Maurer, *Krit. Ueb.*, III, 52. On the expansion of the English kingdom and the rise of the king's peace, see Stubbs, *Const. Hist.*, I, chaps. VI, VII; Freeman, *Norman Conquest*, I, 1–99; *Comp. Pol.*, chap. IV; Green, *The Conquest of England*. Cf. Wilda, *Strafrecht*, 253–64, for the continental Germans; and Leist, *Alt-Arisches Jus Gentium*, 341–72, for the genesis and development of the king's jurisdiction in India.

[2] Palgrave, *Commonwealth*, I, 284–5; Allen, *Royal Prerogative*, 44 ff.; Stubbs, *Const. Hist.*, II, 103; Hearn, *Aryan Household*, 449. Is not the wardstaff, which was annually sent from town to town and from manor to manor in ancient Essex, as a symbol of the king's person and of the entrance of the peace, an example of the tendency to incorporate abstract conceptions in concrete images? For the "Tale of the Wardstaff," see Palgrave, *Commonwealth*, II, clvii–clxii.

[3] Chaps. IX, X.

aggrieved to seize the chattels or other belongings of a delinquent as a pledge or means for compelling the performance of a duty, the payment of a debt, or the reparation of a wrong, is everywhere recognized in primitive jurisprudence. And as an expedient for facilitating the peaceable settlement of disputes instead of a resort to battle, it is only second in interest to the wergeld itself. In modern legal systems private distress either holds a very insignificant place, or else it has entirely ceased to exist. But, stated broadly, the further we ascend the stream of development, the greater does its relative importance become. Thus the Roman *pignoris capio*, already mentioned, could be employed, as Gaius informs us, only in a few specified cases where there seemed to be urgent necessity for speedy action.[1] Here distress appears as a mere survival; for Roman law is remarkable for its early maturity. On the other hand, in the East, self-redress occupies a much broader field. The code of Manu as interpreted by Brihaspiti prescribes five different modes of private execution in enforcing the payment of a debt. Violence is sanctioned by the law. The creditor may seize the delinquent debtor, carry him to his own house, and force him by threats and blows, to satisfy the obligation; or he may compel him to pay "by confining his wife, his son, or his cattle, or watching constantly at his door." Only when the obligation ceases to be "manifest" and may be contested by the defendant, does private execution cease and the intervention of the courts begin.[2]

Connected with the custom of "watching constantly at the door" is the form of distress called "sitting dharna," or "sitting in arrest," still practised among Brahminical families of India. This extraordinary "hunger-duel," as it is charac-

[1] "By custom," the soldier could distrain upon his paymaster for his pay; for money to buy a horse; or to buy barley to feed the latter. "The Twelve Tables rendered liable to distress on default of payment the buyer of a victim and the hirer of a beast of burden lent to raise money for a sacrifice": Gaius, IV, §§ 27–8; Poste, pp. 510–11. Cf. Maine, *Early Hist. of Inst.*, 257 ff.

[2] See the enumeration and a discussion of the modes of procedure authorized by Manu, in Leist, *Alt-Arisches Jus Gentium*, 473–83; and compare Maine, *Early Hist. of Inst.*, 297–8.

terized by Leist,[1] is thus described: "The inviolability of the Brahmin is a fixed principle with the Hindoos, and to deprive him of life, either by direct violence or by causing his death in any mode, is a crime which admits of no expiation. To this principle may be traced the practice called dharna. . . . It is used by the Brahmins to gain a point which cannot be accomplished by any other means, and the process is as follows: The Brahmin who adopts this expedient . . . proceeds to the door or house of the person against whom it is directed, or wherever he may most conveniently arrest him; he then sits down in dharna with poison, or a poignard, or some other instrument of suicide in his hand, and threatening to use it if his adversary should attempt to molest or pass him, he thus completely arrests him. In this situation the Brahmin fasts, and by the rigour of etiquette the unfortunate object of his arrest ought to fast also, and thus they both remain till the institutor of the dharna obtains satisfaction. In this, as he seldom makes the attempt without the resolution to persevere, he rarely fails; for if the party thus arrested were to suffer the Brahmin sitting in dharna to perish by hunger, the sin would forever lie upon his head."[2]

It is a rule at the present hour all over the East, says Maine, "that a creditor who requires payment from a debtor of a higher rank than himself 'shall fast upon him.'" Thus, in Persia, "a man intending to enforce payment of a demand by fasting begins by sowing some barley at his debtor's door and sitting down in the middle. The symbolism is plain enough. The creditor means that he will stay where he is without food, either until he is paid or until the barley-seed grows up and gives him bread to eat."[3] And it is remarkable that fasting is also recognized in the Senchus Mor, a collection of ancient Irish customs, the date of whose compilation is unknown. "Rather more than half" of this code is

[1] Leist, *Alt-Arisches Jus Gentium*, 478.

[2] Lord Teignmouth, in Forbes' *Oriental Memoirs*, II, 25, cited by Maine, *Early Hist. of Inst.*, 299.

[3] Whitley Stokes, in Maine, *Early Hist. of Inst.*, 297.

taken up with the law of distress; and distress there appears "to be the universal method of prosecuting claims of all kinds," but it must be accompanied by notice, witnesses, "stays," and other legal restrictions, showing that the state has already encroached considerably on the domain of self-redress.[1]

Distress is recognized by nearly all of the early Germanic codes. It is forbidden by the laws of the West Goths. Among the Lombards it may be resorted to after simple demand of satisfaction; while according to the *Lex Salica* it may be used even in cases of breach of contract; but "a succession of notices has to be given in solemn form by the complainant to the person of whom he complains, and whose property he proposes to seize. Nor can he proceed to seizure until he has summoned this person before the popular court, and until the popular officer of the court, the Thunginus, has pronounced a formula licensing distraint." Still, this is "not a strictly judicial procedure, but rather a procedure regulating extrajudicial redress."[2]

But nowhere can the cautious and tardy processes by which the state built up her jurisdiction, preserving so far as possible the forms of self-help which she found already in use, be studied to better advantage than in the ancient English actions of distress and replevin. Although it may have had a broader application before the Norman Conquest, the action by distress, in the age of Henry III, was practically restricted to the seizure of the chattels of a tenant for arrears of rent or service; or a stranger's cattle found trespassing on another person's grounds.[3] By the common law neither notice nor

[1] "Notice precedes every distress in the case of the inferior grades except it be by persons of distinction. Fasting precedes distress in their case. He who does not give a pledge to fasting is an evader of all; he who disregards all things shall not be paid by God or man": *Senchus Mor*, I, 113: Maine, *Early Hist. of Inst.*, 297.

[2] Maine, *Early Hist. of Inst.*, 270–71. See Behrend, *Lex Salica*, c. L, pp. 65–8, for the text of the law.

[3] For the law of distress and replevin, see Horne, *Mirroir des Iustices* (London, 1642), 156–60; Greenwood, *Curia Comitatus Rediviva*, 36–53; Blackstone, *Commentaries*, III, 6–13, 412; Powell, *A Treatise of the Antiquity, etc., of the*

the aid of an officer was required. The whole procedure in making the distress is full of significance for our present purpose. Let us avail ourselves of Mr. Maine's vivid description of it: "The person assuming himself to be aggrieved seized the goods (which anciently were almost always the cattle) of the person whom he believed to have injured him or failed in duty towards him. He drove the beasts to a pound, an enclosed piece of land reserved for the purpose, and generally open to the sky. Let me observe in passing that there is no more ancient institution in the country than the Village Pound. It is far older than the King's Bench, and probably older than the Kingdom. While the cattle were on their way to the pound the owner had a limited right of rescue which the law recognised, but which he ran great risk in exercising. Once lodged within the enclosure, the impounded beasts, when the pound was uncovered, had to be fed by the owner and not by the distrainor; nor was the rule altered till the present reign. The distrainor's part of the proceedings ended in fact with the impounding."[1] The object of the distress was simply to enforce, "extort," payment. Originally the distrainor had no right to sell the chattels in order to realize the amount of his claim. But if the owner of the cattle denied the right of the plaintiff to distrain, he might avail himself of the action of "replevin." At his request or by command of a writ issued from chancery, the king's officer, the sheriff, took the cattle out of the pound and gave them into the owner's hands, on condition that the latter should give security to abide by the judgment of the court. The replevin was in fact a sort of re-distress — a giving back[2] in a new form of a pledge in exchange for the one which the distrainor surrendered. "The comparative

Ancient Courts of Leet (London, 1641), 33–7; Reeves, *Hist. of Eng. Law*, II, 305–11; Sullivan, *Lectures on the Const. and Laws of England*, 100–105.

[1] Maine, *Early Hist. of Inst.*, 263.

[2] *Replevy*, from Fr. *re* (Lat. *re*), again; and *plevir*, to warrant, give pledges. *Plevir* is probably from Lat. *praebere*, to afford, hence to offer a pledge: Skeat, *Etm. Dict.*, 502.

antiquity of the various steps in the procedure are not . . . difficult to detect. Nothing can be more archaic than the picture presented by its more venerable details. The seizure of the cattle, the rescue, and the counter-seizure belong to the oldest practices of mankind. . . . Here, not in a city-community, but among the ancient legal forms of a half-pastoral, half-agricultural people, we come upon plain traces of a foray. But the foray which survives in the old Law of Distress is not, like the combat of the ancient Roman Action (the sacramentum), a mere dramatic representation. Up to a certain point it is a reality, and the most probable account of its origin is that it is a genuinely disorderly proceeding which the law steps in to regulate." The king, through his tribunals, was as yet unable to take the whole proceedings into his own hands.[1]

II. RISE OF LOCAL PEACE-MAGISTRATES.

(*a*). — *Old English Police Administration.*

Thus far we have been concerned primarily with the origin and nature of the public peace. Incidentally we have seen that the clan-chief, the house-father, was the original peace-officer. Indeed, the patriarchal authority would seem to be the germ from which all the magistracies of the world, from the constable to the king, have been evolved.[2] Let us now trace the history of the agencies gradually called into being by the unfolding state for the purpose of maintaining her authority and administering her jurisdiction, particularly in the local communities.

From the settlement in Britain the folk-moots were the only police and justice tribunals. In the tenth century these were the hundred and shire courts, composed each of town-

[1] Maine, *Early Hist. of Inst.*, 265, 268.

[2] "Es ist zweifellos, dass der indische rājan, der italische rex, der griechische basileus eine historisch zusammenhängende altarische Institution sind. Des Königs Stellung ist bei allen diesen Völkern die erweiterte des Hausvaters": Leist, *Alt-Arisches Jus Gentium*, 342.

ship-representatives, together with all lords of land within the district, and having equal authority to declare folk-right in all cases, civil or criminal. Judgments were usually rendered in each by a committee of the suitors, called the "twelve senior thegns." The sheriff was the peace magistrate of the shire, exercising authority as the king's appointed agent; the ealdorman commanded the fyrd; while the tithingman and hundredman, as ministerial officers of the smaller communities, were the forerunners of the petty and high constables of later times. Without doubt, these started the "hue and cry," and led in the pursuit of the peace breaker. But the people themselves were largely entrusted with police administration; and as the kingdom grew and the population increased, special regulations for the direction of their action began to appear.

One of the earliest of these preserved in the written codes is the law of Æthelstan (925–940) requiring that each landless (lordless) man shall find a surety who shall be responsible for his conduct.[1] A decree of Eadmund (940–946), quaint and almost pathetic in its tone, reads: "Also I thank God and you all that you have stood by me well, and for the peace which we now have in respect to theft; likewise I trust in you that you will render all the more aid in this matter; as it is more needful for us all that it (the peace) should be maintained."[2] Here the people are themselves still the keepers of the peace.

A law of Eadgar provides, in case of any violation of the peace (neod), that the hundredman shall notify the tithingman, and then *all* are to go forth in search of the malefactor.[3] Another throws light on the great publicity of old English life, where everything was done openly, and communal claims encroached largely upon that which now is left to the discretion of the individual. This law establishes "witnesses of bargains" in every borough and hundred, a kind of notaries,

[1] Æthelstan, II, 2: Schmid, *Gesetze*, 132–3.
[2] Eadmund, II, 5: Schmid, *Gesetze*, 178–9.
[3] Eadgar, I, 2: Schmid, *Gesetze*, 182.

without whose co-operation nothing may be bought or sold in the community. The man who purposes to ride forth to purchase an ox or a horse must tell his "neighbor" of the fact, and when he returns must make known who were the witnesses to the purchase, else he is liable to be seized as a thief.[1] A third law of the same king is of greater historic importance in this connection, and may be regarded as a development of that of Æthelstan already cited. Every one is required to furnish a surety, who shall be liable in case of misconduct for what may seem just. Should the thief be produced within twelve months, the sum forfeited is to be restored to the surety. In case any one refuses or is unable to find a surety, or is persistent in wrongdoing after thrice being summoned to appear before the hundred moot, members of that body are enjoined to take him dead or alive and seize his goods. Out of the latter the injured is to be satisfied, and what remains is to be divided between the "lord" and the hundred in equal parts. The open thief and the traitor to his lord shall have no mercy, save through the grace of the king.[2]

The police machinery of the old English was greatly supplemented by an institution dating from the reign of Æthelred (978–1016), which by some writers is regarded as the germ of the grand jury: Every wapentake shall have its moot; and the "twelve senior thegns," together with the reeve, are to go forth and present all criminals, being sworn on the halidom to accuse none falsely and to suffer no guilty one to escape.[3] Whether this institution was permanent or existed throughout all England, it is impossible to say; but the "twelve senior thegns," who acted as judges and jury in each hundred and shiremoot, may have performed the same duties.[4]

Canute (1016–1035) required every person over twelve

[1] Eadgar, IV, 3–11: Schmid, *Gesetze*, 196–7.
[2] Eadgar, III, 6, 7: Schmid, *Gesetze*, 190–93.
[3] Æthelred, III, 3: Schmid, *Gesetze*, 213–15.
[4] Stubbs, *Const. Hist.*, I, 102–3, 115.

years of age to take an oath "not to be a thief or a receiver of such";[1] and under severe penalty commanded every one who discovers a thief to raise the hue and cry, and all who hear the cry, to join in the chase.[2]

But the most noteworthy law of this monarch relating to the peace is one which, besides enforcing the system of sureties as in the laws of Eadgar, provides that every freeman of whatever condition (heorthfaest or folgere), over twelve years of age, shall be in a hundred and in a tithing, in order to enjoy the protection of the law.[3] This probably refers, suggests Bishop Stubbs, "to the obligation of the hundred and the tithing to pursue and do justice on the thief."[4] The police regulation of Canute just mentioned has given rise to a great deal of controversy. Many regard it as the origin of the *frithborh* or frankpledge. But the weight of authority is against this view.[5] The confusion results largely from a similarity of names; but the regulation of Canute may have been a stage in the development of the frankpledge. "The laws of Eadward the Confessor, a compilation of supposed Anglo-Saxon customs issued in the twelfth century, contain a clause on which the later practice of frankpledge is founded, but which seems to originate in the confusion of the two clauses of the law of Canute. By this article, which describes itself as a comparatively recent enactment, all men are bound to combine themselves in associations of ten, to which the name of *frithborh* is given in the South and that of *tenmannetale* in the North of England. Each association has a headman, a 'capital pledge,' *borhs-ealdor* or *frith-borge-head*, to manage the business of the ten. Thus constituted, they are standing sureties for one another: if one break the law, the other nine shall hold him to right; if they cannot produce him, the capital pledge with two of his fellows, and the head-

[1] Canute, II, 21: Schmid, *Gesetze*, 283. [2] Canute, II, 29: Schmid, *Gesetze*, 286.
[3] Canute, II, 20: Schmid, *Gesetze*, 280–1. [4] Stubbs, *Const. Hist.*, I, 87.
[5] For the literature on the question of *Gesammtbürgschaft*, see Konrad Maurer, *Krit. Ueb.*, I, 87 f. See also Glasson, *Histoire du Droit et des Institutions de L'Angelterre*, I, 62–75.

men and two others out of each of the three nearest *frithborhs*, are to purge their association of complicity in the flight of the criminal, or to make good the mischief he has done. The association of ten is called also the tithing, and the capital pledge, the *tithing*-man."[1] Subsequently this system was kept in order by the local courts through what was called the "view of frankpledge," for which purpose the capital pledge and others of the tithing appeared as representatives of the township.[2]

After the Norman Conquest, in the ages preceding the advent of special commissions, the machinery for maintaining the peace was certainly formidable in appearance.[3] The sheriff, as chief peace officer of the shire, had gained increased authority. On simple request, "without any writ sent unto him," he might "command a man to find sureties of the peace by recognisance."[4] The duties of constables of townships and hundreds were defined, though the offices were not created, by the writ enforcing the Assize of Arms, 1252, and the Statute of Winchester, 1285.[5] And after Richard I, 1194, the coroner became a potent aid to the sheriff.[6]

In addition to these agencies, many of the great officers of state were at "common law" regarded as *ex officio* conserva-

[1] Stubbs, *Const. Hist.*, I, 87–8.

[2] For the best statement of the historical connection between the view of frankpledge and the presentments of the leet jury, see Mr. Maitland's Introduction to the *Select Pleas in Manorial and other Seignorial Courts:* Selden Society, II, xxvii–xxxviii; and for several examples of presentments by the capital pledge (tithingman) and his tithing, see *Ib.*, II, 161–75. Cf. Horne, *Mirroir des Iustices*, 109–114; Powell, *A Treatise of the Antiquity, etc., of the Ancient Courts of Leet*, 45 ff.

[3] See particularly the classification of peace officers in Lambard, *Eirenarcha*, 11–19. Cf. Reeves, *Hist. of Eng. Law*, III, 201–2; Stephen, *Hist. of the Crim. Law*, I, 184 ff.; Blackstone, *Commentaries*, I, 350; Burn, *Justice of the Peace*, 421; Dalton, *Country Justice*, 1–2. Wright, *The Office of Magistrate*, 1.

[4] Lambard, *Eirenarcha*, 13.

[5] For the text of these statutes, see Stubbs, *Select Charters*, 370 ff., 469 ff. The Statute of Winchester is printed in *Statutes at Large*, I, 230–6. Cf. Stephen, *Hist. of Crim. Law*, I, 188.

[6] Gneist, II, 41; Adams, *Norman Constables*, 9; Stephen, *Hist. of the Crim. Law*, I, 217.

tors of the peace, and in this capacity they had police jurisdiction. Such were the lord chancellor, the lord treasurer, the vice-chancellor, the lord steward, the lord high constable, the lord marshal, the justices of the king's bench, and the king himself. These exercised authority throughout the whole realm. Other dignitaries were conservators within certain limits. Thus the justices of the common pleas and the barons of the exchequer were guardians of the peace within the precincts of their respective courts; and the justices of assize might "award a man to prison that breaketh the peace in their presence, . . . command the keeping of the peace under a paine, and that weapons be taken from the jurors or witnesses, that appear before them, if any complaint be thereupon made"; but as merely justices of assize, they could "neither take suretie of the peace, nor award any processe for it."[1] In like manner the marshal and the steward of the king's house were conservators of the peace within the dwelling; as, by prescription, was the steward of the Marshalsea within the verge.[2] Finally the steward of the sheriff's tourn or other court leet, while in the execution of his office, could take presentment of any offence against the peace or commit to ward any one engaging in an affray in his presence.[3]

As there were many officers, so there were various tribunals possessing police jurisdiction. The sheriffs' tourn sat twice a year in each hundred of the shire to view frankpledge and try causes. The courts leet of the manors and boroughs, meeting also twice each year,[4] possessed criminal jurisdiction. The old county court, under presidency of the sheriff, continued to exercise a remnant of its original power, though

[1] Lambard, *Eirenarcha*, 13. [2] Lambard, *Eirenarcha*, 13.

[3] But the steward and suitors of a court baron could not commit to custody: Lambard, *Eirenarcha*, 14. On these ex officio conservators, cf. Dalton, *The Country Justice*, 1–6; Burn, *Justice of the Peace*, 421; Blackstone, *Commentaries*, I, 349–50.

[4] Gneist, II, 166, 170. On the classification of courts in the age of Edward I, see Maitland's Introduction to *Select Pleas in Manorial Courts:* Selden Society, II, pp. xv ff.

after magna charta, it, as well as other local tribunals, lost the right to try pleas of the crown, in favor of the *plenus comitatus* or full county court assembled before the king's justices.[1]

But all these various means for securing order were entirely inadequate. No court competent to punish offences was held save at long intervals. The view of frankpledge became burdensome. Complaints that the peace was not kept were incessant; and even in the days of Edward I the Statute of Winchester discloses a deplorable state of social disorder.[2] There was need, in short, of a local and permanent peace-magistracy, with power to try and punish, and whose tribunals should be always open. And now begins an interesting series of experiments in the creation of special "commissions."

(*b*). — *Milites Assignati, Conservatores, et Custodes Pacis.*[3]

In 1195, under Richard I, a proclamation was issued which marks an epoch in the history of the justice of the peace. All persons above the age of fifteen were required to swear "according to the old law of Canute, not to be thieves or

[1] *Magna Charta*, c. 24: Thompson, *Magna Charta*, 76, 77, 111; Creasy, *Eng. Const.*, 127–29; Stubbs, *Select Charters*, 300; *Const. Hist.*, I, 607; Bigelow, *Hist. of Procedure in England*, 131–141.

[2] Stubbs, *Select Charters*, 469–74; Nicholls, *Hist. of Eng. Poor Law*, I, 22–23.

[3] The earliest treatise on the justice of the peace is that of Marrow published in the 18th year of Henry VII. This was followed in 1514 by Sir Anthony Fitz-Herbert's *L'Office et Auctoritie de Justices de Peace*, an English version of which appeared in 1538; enlarged by Richard Compton, 1587: Alibone, *Dictionary of Authors, s.v.* These two works constitute the basis of the still more celebrated *Eirenarcha* of William Lambard, which has been copied by Blackstone, Reeves, and other writers. The first edition of Lambard's work appeared in 1581, and by 1619 it had been reprinted eleven times; references in the text are to the edition of 1614, a copy of which is in the author's possession.

More extended treatises are *The Country Justice* of Michael Dalton, first edition 1619, that of 1666 being here cited; and the *Justice of the Peace and Parish Officer*, by Richard Burn, of which I have used the 3d edition, 1756. The 29th edition of this standard work, in six large volumes, was printed in 1845, supplemented 1852, by E. Wise: Gneist, II, 176.

Other handbooks are Archbold's *Justice of the Peace and Parish Officer;*

robbers, or receivers of such, and to fulfil their duty of pursuing the thief when the hue and cry is raised. The enforcement of the edict was committed to knights assigned (milites assignati) for the purpose; this is probably the origin of the office of conservator of the peace, out of which, in the reign of Edward III, the existing functions of the justice of the peace were developed."[1] "Assigned" knights also appear under Henry III, 1230 and 1252.[2]

A second stage is reached in the *custos pacis* of the fifth year of Edward I, elected by the sheriff and community in the full county court;[3] whether the office was permanent or occasional is not known.[4]

In 1285 "conservators" were elected, probably in the same way, to carry out the provisions of the Statute of Winchester.[5]

Deacon's *Guide to Magistrates Out of Sessions;* Dickinson's *Practical Guide to the Quarter Sessions and other Sessions of the Peace;* Leeming and Cross's *The General Quarter Sessions of the Peace.*

Among modern historical works on the subject, by far the most elaborate treatment is contained in Gneist's *Englische Communalverfassung oder das System des Selfgovernment* (Vol. II of his *Englische Verfassungs- und Verwaltungsrecht*, Berlin, 1857–1860), several hundred pages of which are devoted to it. I have also derived much assistance from Stephen, *History of the Criminal Law of England;* Reeves, *History of the English Law;* Blackstone, *Commentaries on the Laws of England;* Wood, *An Institute of the Laws of England*, 1754; Stubbs, *Select Charters* and his *Constitutional History;* Maitland, *Justice and Police;* Chalmers, *Local Government;* Wright, *The Office of Magistrate* (London, 1889); Brodrick, *Local Government in England*, in Cobden Club publications, 1882, edited by J. W. Probyn; Thornton, *Two Centuries of Magistrates' Work in Surrey: Fort. Rev.*, May, 1889; Goodnow, *Local Government in England: Pol. Science Quart.*, Dec. 1887; Pulling, *A Handbook for County Authorities* (London, 1889); Hobhouse and Fanshawe, *The County Councillor's Guide* (London, 1888); Cox, *Institutions of the English Government;* P. V. Smith, *History of English Institutions;* Toulmin Smith, *The Parish;* Nicholls, *History of the English Poor Law;* especially, Hamilton, *Quarter Sessions from Queen Elizabeth to Queen Anne;* and the *Middlesex County Records*, 3 vols., edited for the Middlesex County Record Society by John Cordy Jeaffreson. These records are rich in illustrations of the social history of the 16th and 17th centuries; and many a powerful sidelight is thrown on affairs of national importance. The editor has introduced each volume by a long preface of great value.

[1] Stubbs, *Const. Hist.*, I, 507; Hoveden, III, 299.

[2] Stubbs, *Const. Hist.*, II, 272.

[3] *Ib.*, 209–10, 273.

[4] *Ib.*, 272.

[5] *Ib.*, 210.

Conservatores pacis were appointed for each county on the accession of Edward II, 1307, among whom was the sheriff, and they were enjoined to be always present in their districts.[1]

On the accession of Edward III, 1327, appeared a very important statute providing that, in every county, "good men and lawful, which be no maintainers of evil or barretors in the country, be assigned to keep the peace."[2] The authority of the magistrates thus assigned was, it is supposed, purely executive, "being limited probably to suppressing disturbances and apprehending offenders, so that they were little more than constables on a large scale."[3] It is important also to observe that this ordinance marks, in another particular, a significant stage in the evolution of the office of justice: hitherto, since 5 Edward I, conservators had been usually, if not invariably, elected in the county court; they now lose all connection with that body, and henceforth bear the character of royal commissioners.[4]

These "conservators," or "justices assigned," as they are called in the statute, were entrusted in the following year with the execution of the Statute of Winchester, and they were authorized to examine and punish evil doers. This seems to be the earliest example of the exercise of judicial functions by justices of the peace.[5]

[1] Gneist, II, 42.

[2] *Statutes at Large*, I, 419–20; Lambard, *Eirenarcha*, 19–21; Stephen, *Hist. of Crim. Law*, I, 112; Reeves, *Hist. of Eng. Law*, III, 202; Gneist, II, 42; Blackstone, *Commentaries*, I, 351; *Political Cyclopædia*, III, 153. On the act of 1327 and, in general, on the causes of the rise of the justice of the peace, see Goodnow, *Local Government in England: Pol. Science Quart.*, II, 644 ff.

[3] Stephen, *Hist. of Crim. Law*, I, 112.

[4] "Which was as much to say," says Lambard of this act, "that in euery shire the king himselfe should place special eyes and watches ouer the common people, that should bee both willing and wise to foresee, and be also enabled with meete authoritie to represse all intention of uproare and force, euen in the first seed thereof, and before that it should grow up to any offer of danger. So that, for this cause (as I think) the election of the simple Conseruators (or Wardens) of the peace was first taken from the people, and translated to the assignement of the King": *Eirenarcha*, 20.

[5] *Statutes at Large*, I, 424. Cf. Gneist, II, 42; Reeves, *Hist. of the Eng. Law*, III, 204; Cox, *Institutions of the Eng. Government*, 313.

In 1330, by the statute of 4 Edward III, the magistrates assigned to keep the peace gain the additional power of taking indictments for trial before the justices of jail delivery; and the sheriffs or other "ministers" are prohibited from letting to bail or mainprise persons so indicted unless they are "mainpernable by the law." [1]

A far more important step in advance was made in 1344. In that year it was enacted that "two or three of the best of reputation in the counties shall be assigned keepers of the peace, *custodes pacis*, by the King's Commission, and at what time need shall be, the same, with other wise and learned in the law, shall be assigned by the King's Commission, to hear and determine felonies and trespasses done against the peace in the same counties, and to inflict punishment reasonably." [2] By this act, it will be observed, two different commissions are provided for. By the first, the powers of mere wardens or keepers of the peace are conferred. By the second, which is to be issued only in case of need, the same officers are, from time to time, granted judicial power in specific instances; [3] and in this respect — as a standing board ready to be employed in judicial business whenever required — there is a distinct gain as compared with the conservators of 1328.

For the purpose of enforcing the Statute of Laborers, officers called "justices of laborers" were created by the acts of 23 and 25 Edward III.[4] But their functions were eventually merged in those of justices of the peace.[5]

Finally in 1360, by 34 Edward III, the permanent office of justice of the peace was instituted; and thus, after more

[1] Lambard, *Eirenarcha*, 21; *Statutes at Large*, I, 431; Stephen, *Hist. of the Crim. Law*, I, 112–13; Reeves, *Hist. of Eng. Law*, III, 203.

[2] ". . . gardeins de la pees par commission de Roy": *Statutes at Large*, II, 11. Cf. Stephen, *Hist. of the Crim. Law*, I, 113; Reeves, *Hist. of Eng. Law*, III, 203; Gneist, II, 42; Stubbs, *Const. Hist.*, II, 273.

[3] Lambard, *Eirenarcha*, 22–3. [4] *Statutes at Large*, II, 29, 31–5.

[5] By 2 Henry V, c. 4: *Statutes at Large*, III. 12. Cf. Gneist, II, 171, 43. On the early conservators, see Burn, *Justice of the Peace*, 420–421; Dalton, *The Country Justice*, 6–13.

than a century and a half of experiment, the local peace-magistracy assumed its definite form and its present name.[1]

III. THE JUSTICE OF THE PEACE.

(*a*). — *Character of the Office.*

By the act of 1360, in each county,[2] a lord and three or four of the most worthy, together with some learned in the law, were authorized to seize, examine, and punish, by common or statute law, or according to their best judgment, all disturbances of the peace; on complaint in the king's name, to hear and determine felonies, or on suspicion to arrest and imprison all dangerous persons, or to take surety for their good behavior.[3]

These powers constitute the broad outlines of the justice's functions both in England and America even at the present hour.

But the extent of their jurisdiction was only gradually determined by a great number of special statutes conferring particular powers upon them; and, in some instances, their general competence was long left undefined, except as it might be inferred from the general powers of local peace officers. Thus the right to make preliminary inquiry into

[1] It is not certainly known when the name 'justice' was first given to the peace-magistrate. Marrow holds that the wardens were made justices by 18 Edward III. But Lambard, *Eirenarcha*, 22–3, thinks that the name dates from 1360, as, within one or two years thereafter, it is found in use. Cf. Dalton, *The Country Justice*, 7.

[2] Lambard holds that previous to the act of 34 Edward III, it had usually been the practice to assign commissioners over several shires in a group: *Eirenarcha*, 21. Henceforth a separate commission for each county was issued. But there are some exceptional cases. Each of the three ridings of Yorkshire and each of the three parts of Lincolnshire has a separate commission. A separate commission is also issued to the liberties of Ely, Ripon, and Peterborough. Various boroughs, also, have separate commissions: Maitland, *Justice and Police*, 94 ff.; Gneist, II, 180.

[3] *Statutes at Large*, II, 135. Cf. Gneist, II, 43; Reeves, *Hist. of Eng. Law*, III, 205; Stephen, *Hist. of Crim. Law*, I, 113; Wood, *Institute*, 83–88.

crimes, with a view to further proceedings, though it had been given to coroners and in practice had probably always been exercised by justices of the peace, was not conferred upon the latter by statute until 1554.[1] In like manner, their well-known power to issue warrants of arrest or summons to appear before them for examination, was not conveyed by any of the early laws. The latter gave them "no other authority for the apprehension of offenders than was by the common law inherent in every constable and indeed in every private person."[2] Only in comparatively recent times has the matter been definitely regulated by statute.[3]

By the act of 1360, the total number of justices that might be included in the commission was left indefinite; and this led, it would seem, to an abuse. "Ambition," says Lambard, "so multiplied the number of ye Iustices, that it was afterward high time to make a contrary Law, to diminish them."[4] This was effected in 1388 by the statute of 12 Richard II, which reduced the number to six, besides the justices of assize, who were always included in the commission; and provided further that no new justices should be added to the commission after it was first issued.[5]

From reign to reign the enactments extending or defining the jurisdiction of justices of the peace constantly increased in number, so that already in the last quarter of the sixteenth century the burden laid upon the magistrate was fast becom-

[1] By 1 and 2 Philip and Mary, c. 13: *Statutes at Large*, VI, 58. Cf. Stephen, *Hist. of Crim. Law*, I, 216–20, 497; Jeaffreson, *Middlesex County Records*, I, pp. xxiii–iv.

[2] Stephen, *Hist. of Crim. Law*, I, 190–91. See the opposing views of Coke (*Fourth Inst.*, 176, 177) and Hale discussed in Stephen, I, 191–93. According to the latter writer warrants are an evolution from or a substitute for the ancient right of local peace-magistrates to start the hue and cry. In the seventeenth century to "grant a hue and cry" was in common use for granting a warrant. *Hist. of the Crim. Law*, I, 190.

[3] By 9 Geo. I, 13 and 44 Geo. III., and 11 and 12 Victoria, 1848: Stephen, *Hist. of Crim. Law*, I, 190–91.

[4] Lambard, *Eirenarcha*, 33.

[5] Lambard, *Eirenarcha*, 33; *Statutes at Large*, II, 303–4; Stephen, *Hist. of Crim. Law*, I, 113; Reeves, *Hist. of Eng. Law*, III, 405.

ing intolerable.[1] And the embarrassment was increased by the form of the commission. The latter had been "stuffed" with the substance of all the particular statutes just referred to, many of which were already obsolete. It thus became unnecessarily long; and besides, "it was otherwise full of defects, from recitals, repetitions, and the heaping together of various incongruous matters; great part of which was rendered unintelligible by repeated errors in the penning of it."[2]

To remedy this evil, in 1590, Sir Christopher Wray, chief justice of the king's bench, devised a new form of commission, which was accepted by the chancellor, and remains essentially unaltered to the present hour.[3]

The two-fold capacity in which justices of the peace officiate is distinctly recognized in the commission. The first general clause conveys the powers of conservators of the peace according to both common and statute law; and, it is important to observe, that it was in this last particular — the authority to execute all statutes relating to the peace administration — that the new commission remedied the principal defect of the old. This authority was conferred upon the justices in general terms,[4] so that henceforth it was no longer necessary to particularize in the commission the various acts relating to their jurisdiction.

[1] "For," says Lambard, "if Hussey (the chiefe Iustice I. H. 7. 3.) did thinke that it was enough to loade all the Iustices of the Peace of those daies, with the execution, onely of the Statutes of Winchester and Westminster, for Robberies, and Felonies: the Statute of Forcible entries: the Statute of Labourers, Vagabonds, Liueries, Maintenance, Embracerie, and Sherifes: Then, how many Iustices (thinke you) may now suffice (without breaking their backes) to beare so many, not Loads, but Stacks of Statutes, that haue since that time beene laide upon them?" *Eirenarcha*, 34. See also for a summary of the more important acts, Gneist, II, 44; Reeves, *Hist. of Eng. Law*, III, 404–5 (Rich. II), 456–7 (Henry V), 489–90 (Henry VI).

[2] Reeves, *Hist. of Eng. Law*, V, 467; Gneist, II, 45.

[3] The Latin text of the commission is given in Gneist, II, 172–3; and Lambard, *Eirenarcha*, 35–39; Dalton, *The Country Justice*, 16–22 (Latin and English).

[4] The words are *ac ad omnia Ordinationes et Statuta pro bono Pacis nostrae.* These were intended to comprehend old statutes, such as those of Westminster, as well as those which might be enacted in future: Lambard, *Eirenarcha*, 45; Reeves, *Hist. of Eng. Law*, V, 467.

The second general clause grants authority to any two or more justices, by the oath of good and lawful men of the county, to hear and determine the various offences therein enumerated;[1] provided, however, to render the proceedings valid, that one of them (quorum) must be of that select number whose names are expressly repeated in the commission. This is the famous "quorum clause"; and the superior rank thus given to some of the magistrates has its origin in the provision of the act of 1360, or rather of the earlier statutes creating *custodes* and *conservatores*, that some versed in the law should be included in the commission. But the distinction is no longer of any practical significance, as it is now customary to include all the commissioners in the quorum clause.[2]

Justices of the peace, then, are county magistrates deriving their powers from the royal commission. At present they are nominated by the crown on the recommendation of the lord lieutenant and usually hold office for life, though they may be removed for misconduct by the lord chancellor.[3] The office is entirely honorary. In early days a small stipend was allowed, but the justices now serve without pay.[4] The number of magistrates which may be appointed is unlim-

[1] ". . . de omnibus et omnimodis Feloniis, Veneficiis, Incantationibus, Sortilegiis, Arte magica, Transgressionibus, Forstallariis, Regratariis, Ingrossariis, et Extortionibus quibuscunque; ac de omnibus et singulis malefactis," etc.

For an analysis of the commission, see Lambard, *Eirenarcha*, 44–51; Gneist, II, 173–4; Burn, *Justice of the Peace*, 422; Wright, *The Office of Magistrate*, 2.

[2] Gneist, II, 178; Lambard, *Eirenarcha*, 48–9. Blackstone says that in his day one or two were excluded from the quorum "for the sake of propriety": *Commentaries*, I, 351; Maitland, *Justice and Police*, 81; Glasson, *Histoire du Droit et des Institutions de L'Angleterre*, VI, 488–9; Goodnow, *Local Govt. in England: Pol. Science Quart.*, II, 645.

[3] Chalmers, *Local Government*, 98–9. In Lambard's day they were appointed "by the discretion of the lord chancellor." But whether originally they were so nominated or by the king directly is uncertain: *Eirenarcha*, 27.

[4] By 12 Rich. II, c. X, the justices are each to receive four shillings a day during sessions, and two shillings a day for their clerk, paid by the sheriff out of the fines and amercements arising at the sessions. Cf. Reeves, *Hist. of Eng. Law*, III, 405. In boroughs, however, there are now paid magistrates.

ited; and, in fact, a very large number is commissioned for each county.[1]

The position of the English justice has always been one of dignity and social distinction. This is shown primarily by the qualifications for the office. The early laws provided that "good" men or the "most worthy" should be appointed. Under Richard II it was enacted that they should consist of the "most sufficient knights, esquires, and gentlemen of the law" of the county.[2] But this vague requirement was inadequate. A statute of Henry VI, reciting that, notwithstanding the laws for ascertaining their qualification, many justices were of small fortunes and necessitous, so as to become contemptible, as well as guilty of great extortions, provides that only those shall be commissioned who have lands or tenements to the value of twenty pounds a year; unless there be no sufficient persons possessing lands and tenements of that value who are learned in the law, in which case the chancellor may appoint others.[3] The qualification at present is an estate in land worth one hundred pounds a year, or the occupation of a dwelling assessed at the same annual amount.[4]

The office of county magistrate is still regarded as highly honorable and it is much coveted. Retired capitalists, young men of rank, members of parliament, are ready to have their

[1] Already in the year 1592, there were at least 55 justices in Devon: Hamilton, *Quarter Sessions*, 3.

[2] By 13 Rich. II, st. 1, c. VII: *Statutes at Large*, II, 313.

"Thus then, our Parliaments (intending to make the Iustice of peace an able Iudge) do require, that he come furnished with three of the principall ornaments of a Iudge: that is to say, with Iustice, Wisdome, Fortitude, for to that summe the words, Good, Learned, Valiant, doe fully amount. And vnder the word Good, it is meant also that he loue and feare God aright, without the which he cannot be Good at all": *Eirenarcha*, 32.

[3] Statute of 18 Henry VI, c. XI. Cf. Reeves, *Hist. of Eng. Law*, III, 489–90; Lambard, *Eirenarcha*, 31; Blackstone, *Commentaries*, I, 352.

[4] Maitland, *Justice and Police*, 81. "But privy councillors, peers, the eldest sons of peers, county court judges, and some other holders of public office, need not have this qualification": *Ib.* The 100 pounds qualification was introduced by 18 Geo. II. Cf. *Political Cyclopædia*, III, 153; Glasson, *Histoire du Droit et des Institutions de L'Angleterre*, VI, 486. An estate in reversion of 300*l.* also constitutes a qualification: Pulling, *Handbook for County Authorities*, 49.

names included in the commission, though they may never exercise the functions of the position. For before a person nominated in the commission can be an "active" justice he must receive from chancery the writ of *dedimus potestatem*, and take the prescribed oaths.[1] His prestige as a magistrate is a traditional distinction of the country gentlemen; and it is in this capacity that the landed aristocracy have always rendered an important service in the community.[2]

(*b*). — *The Single Justice.*

The office of justice of the peace is peculiarly an English institution,[3] and it has been developed in a thoroughly English way. From generation to generation its powers expanded; little by little it absorbed the functions of older organisms; statute after statute heaped new duties upon it, until it became the most important element of local govern-

[1] Gneist, II, 181; Blackstone, *Commentaries*, I, 352; Lambard, *Eirenarcha*, 52. In 1856, out of some 18,000 justices in Great Britain, only 8000 were active.

The oath of office, the oath of allegiance and supremacy, and the oath as to property qualifications, are given in Gneist, II, 182–3; Burn, *Justice of the Peace*, 484.

The oath of office prescribed by 13 Rich. II, c. 7, is still retained. This oath, says Lambard, *Eirenarcha*, 54, "I haue seene expressed in these six Verses following:

1 Doe equall right to rich and poore,
as wit and Law extends:
2 Giue none aduise in any cause,
that you before depends:
3 Your Sessions hold, as Statutes bid:
the forfeits that befall,
4 See entred well, and then estreat
them to the Chequer all:
5 Receiue no fee, but that is giuen
by King, good vse, or right:
6 Ne send Precept to party selfe,
but to indifferent wight."

[2] On the importance of the office to the landed gentry, see Brodrick, *Local Government in England*, 19 f. Cf. Gneist, II, 186; and Freeman, *The House of Lords and the County Councils: Fort. Rev.*, May, 1888, p. 601.

[3] "It is such a form of subordinate government for the tranquillity and quiet of the realm, as no part of the Christian world hath the like, if the same be duly exercised": Coke, *Fourth Institute*, p. 170, cited by Maitland, *Justice and Police*, 93.

ment in Great Britain. The mass of enactments relating to the subject is overwhelming. The "stacks of statutes" which seemed so formidable to Lambard have grown into mountains well-nigh insurmountable.[1] The foremost writer on English local government seems to shrink in dismay before the task of subjecting them to systematic treatment.[2] "Long ago lawyers abandoned all hope of describing the duties of a justice in any methodic fashion, and the alphabet has become the one possible connecting thread."[3]

The county magistrates act in several different capacities. Certain duties may be performed by one alone; others require the co-operation of two or more — the so-called "petty sessions"; while the more important judicial and administrative business, the general superintendence of county affairs, is reserved to the "quarter sessions of the peace."[4]

All these tribunals are said by English writers to possess both criminal and civil jurisdiction. But under "civil jurisdiction" is comprehended much that is merely executive or administrative; while as judicial bodies the tribunals of the justice of the peace are essentially criminal courts, though a limited amount of *quasi* civil litigation may come before them.[5] First let us notice the functions which may be performed by a single magistrate out of sessions.[6]

Every justice is primarily a conservator of the peace; and in this capacity he may apprehend offenders, issue warrants of arrest, take sureties of the peace or for good behavior, and exercise all other powers belonging to a custodian at common or statute law, or by his commission.[7]

[1] Cf. the remarks of Maitland, *Justice and Police*, 84. [2] Gneist, II, 197 ff.

[3] Maitland, *Justice and Police*, 84. All recent legal treatises on the justice of the peace are arranged alphabetically.

[4] An excellent summary of the powers of the justice in his various capacities is given by Goodnow, *Local Govt. in Eng.: Pol. Sc. Quart.*, II, 652–9. The little manual of Wright, *The Office of Magistrate*, or the more elaborate work of Pulling, *Handbook for County Authorities*, will be found convenient.

[5] Lambard, *Eirenarcha*, 59; Maitland, *Justice and Police*, 90.

[6] Lambard, *Eirenarcha*, Book II, pp. 72–308, is devoted to the duties of the single justice. [7] Gneist, II, 201–7; Lambard, *Eirenarcha*, 74 ff.

As a judge the position of the magistrate is very important. His court is always open; here there are no long delays of justice as in the ancient tourn or leet. The magistrate, in his individual capacity, is always at his post. At an early day he acquired the right, for a time co-ordinately with the sheriff,[1] of conducting the preliminary examination of persons charged with crimes and felonies. By subsequent legislation this duty was imposed, sometimes upon one, sometimes on two justices, as the cases varied.[2] At present, however, the first proceedings in criminal actions, except high treason, are usually conducted in petty sessions, though the examination may still be made by a single justice even when not sitting in open court.[3]

More interesting historically is the power of the justice to hear and determine minor criminal causes without the aid of a jury. His jurisdiction in such matters is wholly the creation of statute. The only procedure known to the common law in criminal cases, however insignificant, was that before judge and jury. And the right to such a trial was confirmed by magna charta.[4] But experience demonstrated at an early day the impossibility of carrying out this principle in all cases. The overburdening of the ordinary criminal courts with petty actions, the necessity of prompt justice through local magistrates, precisely in such minor cases, and the early appearance of police ordinances relating to labor and trade: these were the chief reasons for the institution of justices of the peace.[5] The early statutes conferred upon the

[1] Examinations were conducted by the sheriff in his tourn until 1 Edward VI, when this power was taken away: Gneist, II, 170, 207. Justices first acquired the right by statute, though they had long exercised it, by 1 and 2 followed by 2 and 3 Philip and Mary. Cf. Lambard, *Eirenarcha*, 212; Stephen, *Hist. of Crim. Law*, I, 219.

[2] Gneist, II, 207–20; Stephen, *Hist. of Crim. Law*, I, 216–33, gives the history of the procedure in preliminary examinations. For the procedure in examinations, see Maitland, *Justice and Police*, 129 ff.

[3] Maitland, *Justice and Police*, 91; Wright, *The Office of Magistrate*, 52. But compare Fonblanque, *How We Are Governed*, 185, who states that the first proceedings always take place in petty sessions.

[4] Gneist, II, 221.

[5] Gneist, II, 221.

latter, as mere police or administrative agents, the power of summary punishment.[1] Gradually, however, the magistrate assumed the character of a judge; a regular procedure was developed;[2] and from century to century a vast number of enactments appeared conferring increased authority, sometimes upon one, sometimes upon two or more justices acting together.[3] Recently these tribunals, whether of one or of two magistrates, have received the name of "courts of summary jurisdiction."[4] And since 1879, only the smallest offences may be tried before a single justice. All cases involving a maximum penalty of more than twenty shillings or a fortnight's imprisonment must come before the petty sessions.[5]

Besides his duties as a police or criminal judge, every magistrate has been entrusted with the performance of other important functions, partly executive and partly judicial; and the latter, though sometimes relating to civil causes, are for the most part concerned with offences of a penal nature. Thus the individual justice is employed in the execution of a great variety of police regulations; such as those relating to defraudation of the excise, the customs, or the postal revenue; those for the suppression of riots and illegal assemblies; the punishment of rogues and vagabonds; the regulation of trade, manufacture, and commerce; the control of theatres and disorderly houses; the suppression of drunkenness and unlawful games; and those relating to alehouses, inns, lodging houses, coaches, hackney carriages, highways, turnpikes, and

[1] "Only in the present century have we begun to think of the summary jurisdiction as normal, and to regulate by general statutes the mode in which it must be exercised": Maitland, *Justice and Police*, 89.

[2] For a history of the procedure, see Stephen, *Hist. of Crim. Law*, I, 124–5; Gneist, II, 208, gives a careful analysis of it.

[3] Even in Lambard's time the single justice had jurisdiction in a large number of criminal and administrative matters: *Eirenarcha*, cap. VII, 189–205. For recent times, see the enumeration of offences, in Gneist, II, 231–35.

[4] Stephen, *Hist. of Crim. Law*, I, 125.

[5] Maitland, *Justice and Police*, 89; Brodrick, *Local Government in England*, 15.

countless other matters.[1] He has been aptly described as the "state's man of all work."[2]

(*c*). — *The Petty and the Special Sessions.*

We now turn to the business of the petty sessions. The history of the latter affords an excellent example of the spontaneous growth and quiet acceptance of an institution long before its recognition by the written law. "Petty sessions" was the popular name originally given to the meeting of two or more magistrates to transact the business imposed upon them by statute.[3] On the other hand, a "special session" or

[1] See the elaborate discussion of Gneist, II, 236–330, where many acts are summarized; Maitland, *Justice and Police*, 92.

[2] Maitland, *Justice and Police*, 92.

[3] It is remarkable, however, that as early as 1605 the privy council planned a regular subdivision of the several counties into petty sessional districts. In a letter of the council dated at Greenwich, June 23, 1605, it is provided: —

"(4) Item, that upon Conference between the Justices of Assizes and the Justices of the Peace of every several county at the next assizes to be holden in the same, convenient and apt divisions be made through every county and riding, and that fit Justices of the Peace be assigned to have the special charge and care of every such division, and these to be answerable for such defects as through their defaults shall happen therein. And every such division to be so made as none be driven to travel above seven or eight miles, that then the same part be assigned to the division of the county next adjoining.

"(5) Item, that the Justices of the Peace of every such division be assigned to assemble themselves together once between every general Sessions of the Peace near about the midtime between each such sessions, at some convenient place within their several divisions, to enquire of, and see the due execution of these things following, viz."

(6) This section enumerates the statutes which the justices of petty sessions are to enforce.

"(7) Item, that the Constable of the Hundred and Wapentake and Petty Constables and other inferior officers, touching matters of justice, inhabiting within any the limits aforesaid, be at the said assemblies, to deliver their knowledges touching the premises. And by warrant from the justices of that division to bring to the assemblies such as offend in remissness or otherwise touching rogues and idlers, or in keeping of tippling houses without lawful licence, or which do not observe the articles and orders prescribed unto them.

"(8) Item, that they appoint a clerk to keep notes of their proceedings at these assemblies.

"(9) Item, that the same clerk and constables of the Hundreds inhabiting

"special petty session" was the name of a similar meeting of the justices residing within a certain district, for a special purpose, and at a time fixed by law.[1] In this way for a limited number of objects there arose a practical subdivision of the shire into legal sessional districts corresponding, for the most part, to the ancient hundreds. But, with this exception, magistrates were not limited as to place in the performance of their duties. By the commission they have always been appointed for the county at large. What may be done by two magistrates may be done by any two.[2] A suitor may have his choice among all the magistrates of the shire. It was natural, however, that the activity of justices out of quarter sessions should be confined mainly to their respective neighborhoods. Thus it happened, by voluntary agreement, that the petty sessions for the transaction of general business, were held at the same time and place and for the same divisions as the special sessions. And since usually the same persons acted in both capacities, the two bodies became practically identical.[3]

Such was the state of affairs when the legislation of the present century began. By several acts, commencing in 1828, the counties have been divided into so-called "petty sessional divisions," which are made to correspond, to some extent, with the "poor law unions."[4] The effect of this

within every such limit certify the Justices of Assize at every assizes upon their oaths what Justices of the Peace were absent from any such assemblies, that the cause may be examined and if need be certified as aforesaid." See the entire document in Hamilton's *Quarter Sessions*, 67–71.

[1] Gneist, II, 331 ff.; Maitland, *Justice and Police*, 88.

[2] Maitland, *Justice and Police*, 89. [3] See Gneist, II, 333–4.

[4] The first was 9 George IV, c. 43, which attempted to substitute more equal divisions for the hundreds, which varied greatly in size. This was followed in 1836 by a new act, 6 and 7 Will. IV, c. 12, which contemplated bringing the petty sessional divisions into harmony, so far as practicable, with the unions. But since the latter may transcend the county limits while the former may not, correspondence in all cases is impossible: Maitland, *Justice and Police*, 88. Other acts relating to the subject are 7 and 8 Vict., c. 61, 12 and 13 Vict., c. 18, 14 and 15 Vict., c. 55.

In 1860 there were 670, in 1881, 715 sessional divisions in England and Wales: Gneist, II, 337 ff., 21–22; Maitland, 88.

legislation has been to give the justices of each petty sessional division the dignity of a "bench," with a clerk, elected chairman, and court-house of their own.[1]

The petty sessions, as already seen, are the principal tribunals invested with summary jurisdiction; and by them also are most frequently conducted the preliminary examinations. In a few instances they possess a genuine civil competence.[2]

Another important branch of the justices' authority in petty and special sessions is their appointing or supervising power. Thus by the great poor law of 43 Elizabeth, it was provided that the overseers of the poor for each parish should be nominated, or more properly, confirmed, by two or more justices in an Easter session.[3] They are now appointed by the same body from a vestry list agreed to by the inhabitants.[4] So, too, by an act of 1842, the nomination of parish constables was placed in the hands of the special sessions;[5] and the petty sessions may confirm the appointment of the inferior county constables created by the act of 1856.[6] Examiners of measures and overseers of highways were also formerly nominated in special sessions.[7]

Finally, the petty sessions have been entrusted with a great deal of important administrative business. Among the functions of this character, as historically developed, perhaps the most important are the granting of licenses for the retail of liquors and for the establishment of theatres and billiard halls,

[1] Maitland, *Justice and Police*, 89.

[2] "It (the court) can give a civil remedy in a dispute between employer and workman, within a £10 limit; a seaman's wages if less than £50, water rates, gas rents, cab fares, can be recovered before it. Orders directing men to pay money for the support of their illegitimate children (bastardy orders) are a staple commodity of Petty Sessions": Maitland, *Justice and Police*, 90.

[3] Nicholls, *Hist. of the Eng. Poor Law*, I, 194; Gneist, II, 644 ff.; Toulmin Smith, *The Parish*, 149–51.

[4] 54 George III, c. 91. Cf. Pulling, *Handbook for County Authorities*, 69.

[5] *Statutes at Large*, LXXXII, p. 961. Cf. Toulmin Smith, *The Parish*, 125 ff.; Maitland, *Justice and Police*, 107. But already for ages, in some places, petty and high constables were appointed by the justices in petty sessions: Burn, *Justice of the Peace*, 155.

[6] Maitland, *Justice and Police*, 111. [7] Gneist, II, 341.

the issue of certificates to pawnbrokers, gang-masters, passage brokers, emigrant runners, and dealers in game; the revision of jury lists; and the execution of laws relating to highways.[1] Nearly all of the administrative functions of the petty sessions remain undisturbed by the recent local government act; and, besides, various powers may be delegated to them at any time by the county council.[2]

(*d*). — *The Quarter Sessions.*

The court of quarter sessions[3] sits four times a year, as the name implies. In theory it is composed of all the justices of the shire sitting *en banc*, though any two may hold a legal session;[4] and in practice a considerable number usually attend.[5]

This court originated as early at least as 1362, when it was enacted that four sessions should be held in each year: one in *octabis* of Epiphany, the second in the second week of Lent, the third between the feast of Pentecost and St. John the Baptist, and the last in *octabis* of St. Michael.[6] Under Richard II, obligation to hold four sessions a year, each for three days if necessary, was enjoined under sanction of punishment at the discretion of the king and council on the suit of any complainant.[7]

[1] Gneist, II, 341–357; Maitland, *Justice and Police*, 166 (jury lists); Pulling, *Handbook for County Authorities*, 64–72, 56.

[2] 51 and 52 Victoria, c. 41, sec. 28. See also Bazalgette and Humphreys, *The Law relating to the County Councils* (London, 1889), p. 42; and Chambers, *A Popular Summary of the Law relating to Local Government*, 54–5.

[3] On the quarter sessions, see Wood, *Institute*, 505 ff.; Burn, *Justice of the Peace*, 643 ff.; Dalton, *Country Justice*, 35 ff.; Lambard, *Eirenarcha*, 376–634; Gneist, II, 358–407 *passim*; Stephen, *Hist. of Crim. Law*, I, 114 ff.

[4] Originally the presence of at least one member of the *quorum* was required. The number of justices necessary for the transaction of business was fixed by the words of the commission: *Assignavimus etiam vos, et quoslibet duos vel plures vestrum, quorum*, etc.: see text of the commission in Gneist, II, 172. Cf. Lambard, *Eirenarcha*, 379.

[5] Maitland, *Justice and Police*, 85.

[6] Reeves, *Hist. of Eng. Law*, III, 206; *Statutes at Large*, II, 154; Gneist, II, 358.

[7] By 12 Rich. II, c. X. Cf. Reeves, *Hist. of Eng. Law*, III, 405; Gneist, II, 358.

Similar courts held by two or more justices at any time other than the regular quarterly terms are styled general sessions. This distinction grew out of an act of Henry IV, which provided that, besides the four annual sessions, the magistrates should "meet more frequently when necessary."[1] But it is of little practical significance, since the powers created by statute, except in a few instances, may be exercised indifferently either in general or quarter sessions; and the latter name is popularly applied to both tribunals.[2]

The court of quarter sessions presents a remarkable example of rapid development. Very soon after its creation it appears as the most dignified and powerful body in the shire. It acquired all the attributes of the "solemn bench and figure of judgment."[3] For ages it was the real centre of English local government; and still more interesting historically is the fact that it became the model for the county courts of the American colonies. But, from an institutional point of view, the process by which the new peace-magistracy — deriving its authority from the royal commission — gradually acquired the powers and attributes of the ancient scirgemot, is the matter of supreme importance. The popular county court, presided over by the sheriff, still continued to exist; but it no longer possessed the wide competence of early days. With the rise of leet jurisdictions, comprising view of frankpledge, many of its suitors were excused from attendance; and after magna charta, the right to try all the more important criminal causes was transferred to the royal judges. But though the shire court fell into decay, it did not entirely perish; its ancient organization as a folkmoot was still preserved for the election of coroners, verderers, and knights of the shire. And so, after the advent of the quarter sessions, the county has two centres: the old scirgemot, the meeting of the folk, with decaying functions; and the new peace tribunal, a branch of the royal jurisdiction, whose authority and range of duties are constantly expanding. For

[1] Gneist, II, 358. [2] Maitland, *Justice and Police*, 85. [3] Lambard, *Eirenarcha*, 376.

five centuries the two courts have existed side by side; but the greater part of the power and prestige of the elder has accrued to the younger body. It is not a case of direct continuity; but of transference of functions, of the encroachment of one organism upon the sphere of another.[1] From this point of view, then — the historic relation of the two rival authorities — our discussion will be developed.

1. — In the first place, the remnant of criminal jurisdiction still belonging to the county court in the middle of the fourteenth century was transferred to the quarter sessions. Indeed, the latter also acquired the right to hear and determine the graver offences — *placita coronæ* — of which the county court in common with other local bodies had been deprived by magna charta.[2] By their commission jurisdiction in all the more heinous crimes and felonies, except treason, was conferred upon the justices; and the early records show that it was freely exercised. In the age of Elizabeth, especially, capital offences were tried indifferently either at the assizes or before the quarter sessions. Great numbers were sent to the scaffold by the peace magistrates.[3] Later it was custom-

[1] Even as late as the 17th century, we find writers regretting the decay of the shiremoot, and pleading for its restoration. See, for example, the little treatise printed in London during the Protectorate, 1657, entitled *Curia Comitatus Rediviva, or the Pratique Part of the County Court Revived*, by W. Greenwood. The work contains a full discussion of the officers, jurisdiction, and procedure of the court, with citations from the early statutes.

[2] Similarly the functions of the sheriff's tourn and the ancient hundred moot were inherited by the petty sessions. See the preceding section.

[3] Proof from the court records of Devon has been collected by Mr. Hamilton: "At the Lent Assizes of 1598 there were 134 prisoners, of whom 17 were dismissed with the fatal *s. p.*, it being apparently too much trouble to write *sus. per. coll.;* 20 were flogged; 1 was liberated by special pardon, and 15 by general pardon; 11 claimed 'benefit of clergy,' and were consequently branded and set free, '*legunt, uruntur, et deliberantur.*' At the Epiphany Sessions preceding there were 65 prisoners, of whom 18 were hanged. At Easter there were 41 prisoners, and 12 of them were executed. At midsummer there were 35 prisoners, and 8 hanged. At the Autumn Assizes there were 87 in the calendar, and 18 hanged. At the October Sessions there were 25, of whom only one was hanged. Altogether there were 74 persons sentenced to be hanged in one county in a single year, and of these more than one-half were condemned at Quarter Sessions. As

ary to reserve such cases for the assizes;[1] but the jurisdiction of the sessions in capital crimes was not abrogated by law until the present century.[2] However, the court found plenty of employment in the punishment of a vast number of offences, ranging from petty theft and minor breaches of the peace to recusancy and non-conformity. In the seventeenth century "Seminaries,"[3] Quakers, and similar offenders, were continually before it;[4] and the execution of the laws against rogues, vagabonds,[5] drunkenness, and disorderly houses was enjoined by the government as a matter of the first importance.[6]

Favorite punishments were flogging, branding, the stocks, and the pillory;[7] while other more curious methods were the

it may be supposed that most of them were young, if a similar ratio prevailed in other countries, the numbers executed must have seriously affected the increase of the population": *Quarter Sessions*, 30–31. See also Stephen, *Hist. of Crim. Law*, I, 467 ff. During the ten years between 6 and 15 James I, 704 persons were hanged in Middlesex (London): Jeaffreson, *Middlesex County Records*, II, xvii.

[1] But the death penalty was sometimes imposed. In the reign of James I, great numbers of persons were condemned *premi ad mortem*, the ancient *peine forte et dure*, for refusing to plead. Thus, in the county of Middlesex, from 6 to 15 James I, that is, during ten years, 32 persons were pressed to death: Jeaffreson, *Middlesex County Records*, II, xviii. Cf. *Ib.*, I, xxxii; II, xvii–xxii; III, xvii–xxiii; and Hamilton, *Quarter Sessions*, 83.

[2] By 5 and 6 Victoria, c. 38, 1842, which deprived the quarter sessions of the power to try cases of murder, treason, capital felonies, felonies punishable by transportation for life, and eighteen specified offences. Cf. Gneist, II, 369; Stephen, *Hist. of Crim. Law*, I, 114 f. At present they cannot try capital crimes, crimes for which a person not previously convicted may suffer penal servitude for life, perjury, forgery, libel, and some other offences: Maitland, *Justice and Police*, 85–86.

[3] Hamilton, *Quarter Sessions*, 2–3, 74 ff.

[4] On the punishment of these offences, much interesting matter will be found in Hamilton, *Quarter Sessions*, 2–3, 27 f., 74 f., 81, 121, 179 f., 195, 164 ff., 258, 295 (Quakers), etc.; Lambard, *Eirenarcha*, 410–420. Many examples are contained in Jeaffreson's *Middlesex County Records:* see Index.

[5] Hamilton, *Quarter Sessions*, 15, 16, 17, 104, 247, 268, etc.; Lambard, *Eirenarcha*, 442 ff.

[6] Hamilton, *Quarter Sessions*, 69, 71–74, 102, 115.

[7] "A favorite punishment for small offences, such as resisting a constable, was the stocks. The offender had to come into church at morning prayer, and say publicly that he was sorry, and was then set in the stocks until the end of evening

peculiar products of the religious sentiment of the times, and exactly identical with those administered by the contemporary county courts of New England. Thus culprits were required to make confession at morning prayer or to stand in the pillory with a paper on the hat inscribed with the name of the offence.[1] In like manner the moral and economic conceptions of the age are revealed in the character of the crimes which the magistrates were called upon to punish. Thus there were frequent sentences for witchcraft,[2] the use of love charms,[3] sabbath-breaking, swearing,[4] and for many acts now regarded as sins or moral delinquencies lying wholly outside the jurisdiction of the state.[5] So also the restraint of "engrossers," "regrators," and "forestallers" was the source of constant anxiety.[6] In Surrey "badgers," as these speculators in provisions were called, seem to have been particularly

prayer. The punishment was generally repeated on the next market-day. But the most common of all punishments was whipping. At every Sessions and Assizes there appears a long list of names to which the Clerk of the Peace appended the word *flagell*, with a flourish at the end strongly suggestive of the lash. This infliction was considered peculiarly appropriate, not only to rogues and vagabonds, but also to women. . . . In one case we find an order that a woman be whipped until she confess the father of her child": Hamilton, *Quarter Sessions*, 31–32. Cf. *Ib.*, 160; and Thornton, *Two Centuries of Magistrates' Work in Surrey: Fort. Rev.*, May, 1889, pp. 696, 702, 710, etc.

[1] Hamilton, *Quarter Sessions*, 111, 113, 31–32.

[2] *Ib.*, 220. See Jeaffreson, *Middlesex County Records*, II, III, for many examples.

[3] Hamilton, *Quarter Sessions*, 86, 113. [4] *Ib.*, 154–5.

[5] *Ib.*, 159 f. In the reign of James I, the justices of Devon committed four men to prison for baptizing a mare. "In another place we have a similar offence described at length. Michael Jeffrye was bound over, one surety in 200*l.*, and one in 100*l.*, for naming a 'dogge' John and sprinkling of water upon him, and signing him with the sign of the cross, saying that it was in the name of the Father, Son, and Holy Ghost": *Ib.*, 84.

[6] Hamilton, *Quarter Sessions*, 91, 103. These terms are defined by Lambard, *Eirenarcha*, 450–51. "An Ingrosser, is hee that ingrosseth or getteth into his hands by buying, contract, or promise taking (other then by demise, lease, or graunt of land or tithe) any Corne growing in the field, or other Corne or Graine, Butter, Cheese, Fish, or other dead victuall, within England, to the intent to sell the same againe." A regrator is one who buys similar produce in a fair or market and "selleth the same againe in any Faire or Market kept there, or within foure miles thereof." A forestaller is a person who buys or contracts for any "Victuall

troublesome, and they were denounced by a proclamation of the justices in 1662. "The practice of regrating, &c., that is, buying market produce to sell again at a profit — to our notions a perfectly legitimate proceeding — was, up to comparatively recent times, a criminal offence and regarded with indignation by society.[1] But, in spite of the indignation of society and the proclamation of the Surrey magistrates, the irrepressible badger continued to forestall, regrate, and engross; and though a few years afterward . . . the court of quarter sessions made a fresh effort to put down the evil by requiring each 'badger,' before he obtained his license, to produce a certificate of 'having regularly attended divine service and taken the sacrament according to the practice of the Church of England,' it was of no avail. By degrees — but only by degrees — more sensible views prevailed; it was found in practice that persecuting the badger, instead of diminishing, enhanced the price of food, and accordingly in 1782 all statutes interfering with badgers were repealed. But the badger was not yet free. Local magistrates found a way of punishing him for regrating as a common-law offence. At length, by an act passed in 1844, all penalties against badgers, whether statutory or common-law, were abolished forever and free trade was established in the market." [2]

The quarter sessions have also an original civil jurisdiction in a limited number of cases, such as contentions between master and apprentice.[3] And it is worthy of remark that in the sixteenth century they exercised authority in civil suits practically co-ordinate with that of the assizes. They could

or Wares" being carried to a market or fair, or to a city, port, or haven; or who in any other way attempts to enhance the price of such produce, or to prevent its being brought to the market to be sold.

[1] See the *Tatler*, No. 118.

[2] Thornton, *Two Centuries of Magistrates' Work in Surrey: Fort. Rev.*, May, 1889, p. 699. "Badger" a corruption of the Fr. *bladier;* comp. "sodger" a vulgarism for "soldier"; *bladier*, again, is from Low Latin *bladarius*, from *bladum* an abbreviation of *ablatum* = carried corn. "Regrating," from Fr. *regratter*, to bargain: *Ib.*, p. 699, *notes.* See also Jeaffreson, *Middlesex County Records*, II, 187, 228; I, 24, 84, 108, 165, for examples of indictment for these offences.

[3] Fonblanque, *How We Are Governed*, 184; Gneist, II, 374–5.

even try questions of settlement, affiliation, and title.[1] But, with these exceptions and aside from their general administrative functions, presently to be mentioned, they have always been essentially criminal tribunals. On the other hand, the civil jurisdiction of the ancient shiremoot was partially revived in the so-called "county courts" of 1846. But in this instance also the connection between the old institution and the new is not organic. The new courts, says Brodrick, "are really nothing more than branches of the imperial judicature, since they are directed to be held in circuits which have no relation to county boundaries, and before judges who are neither paid out of the local funds, nor required to have any qualification of county residence. They form, therefore, no part of county government, which in this respect, as well as in others, is far less complete and self-contained than it was in Saxon times."[2]

The quarter sessions may also hear appeals from the orders and decisions of the single justice and the petty or special sessions. But this authority is wholly the creation of statute. Previous to the Restoration appeal from a justices' court, of whatever grade, lay only to the king's bench or the common pleas, and, in some instances, to chancery or the privy council.[3]

2. — But the quarter sessions inherited more than the mere judicial powers of the scirgemot. They gained also its majesty and local sovereignty. The officers of county and hundred who once obeyed the commands of the popular council became the servants and ministers of the royal nominees. The sheriff, the high constables, and the manorial bailiffs were required to attend them, to serve their processes

[1] Hamilton, *Quarter Sessions*, 30. [2] Brodrick, *Local Govt. in Eng.*, 16.

[3] Gneist, II, 388 ff. "Das Appellationsrecht versteht sich daher nicht von selbst, tritt vielmehr nur ein, wo die einzelen Gesetze *ausdrücklich* einen appeal an die Quartalsitzung geben; während umgekehrt das Abberufungsrecht der Reichsgerichte durch Certiorari sich von selbst versteht, wo es nicht ausdrücklich durch Statut weggenommen ist. Das Recht zu appelliren wird auch nicht durch analoge Ausdehnung (equitable construction) erweitert, sondern streng auf die im Gesetz speziell erwähnten Fälle beschränkt": *Ib.*, II, 389.

and execute their decrees;[1] while the new county constabulary, which has at length superseded the ancient police organization, was placed directly under their control.[2] Even the coroner, the right to elect whom so long attested the vitality and surviving dignity of the shiremoot, was made accountable to the same body.[3] The county treasurer was their nominee; and the *custos rotulorum*, who ranks as civil head of the shire, is himself the principal justice named in the commission. By him the clerk of the peace was appointed. And since the office of custos has usually been combined with that of lord-lieutenant, it happened that the military chief of the shire, the representative of the Saxon ealdorman — the sometime sovereign of an independent state — became a *de facto* minister of the ever encroaching authority of the magistrates.[4]

3. — In another and very important capacity the quarter sessions gradually took the place of the county court. They became the real centre of local life, the efficient organ of local government. In the language of Parliament, they were made emphatically the "county authority." Before the establishment of county councils in 1889, the number of executive and administrative duties imposed upon them was indeed formidable.[5] Thus they were constituted the fiscal board of the shire. They were authorized to levy, assess, and superintend the disbursement of the county rate.[6] The treasurer was appointed by them and to them he rendered his account. This fiscal authority of the justices is unique in English his-

[1] Lambard, *Eirenarcha*, 394 ff.; Gneist, II, 362.

[2] Maitland, *Justice and Police*, 107, 111.

[3] Lambard, *Eirenarcha*, 395; Gneist, II, 362. The coroner is also *ex officio* justice of the peace: Chalmers, *Local Government*, 97. The coroner is now appointed by the county council: Hobhouse and Fanshawe, *County Councillor's Guide*, 15.

[4] In 1871 the lord-lieutenant was deprived of his military powers which were revested in the crown: Chalmers, *Local Government*, 93.

[5] See the excellent summary of Gneist, II, 376 ff.

[6] "County expenditure is thus classified: (1) police, (2) prosecutions, (3) reformatories, (4) lunatic asylums, (5) shire halls and judges' lodgings, (6) militia storehouses, (7) county bridges, (8) contributions for main roads, (9) register of electors, (10) salaries of county officers": Maitland, *Justice and Police*, 87, *note*.

tory — a singular instance of taxation for local purposes, not by elected representatives of the community concerned, but by the appointed agents of the crown.

The sessions were also entrusted with the administration of the county property;[1] and they authorized the construction and repair of shire halls and other public buildings. By them likewise county bridges were built; and they acquired at length the principal jurisdiction over highways.[2] Until recently the control of county prisons was vested in them, and they may still appoint visiting committees to report abuses.[3] They shared in the administration of the license system;[4] had jurisdiction over weights and measures, and might divide the shire into sessional, polling, highway, and even coroners' districts.[5] They also gained control of a considerable local patronage. Thus they might nominate inspectors of weights and measures, visitors of factories, inspectors of yarn,[6] and inspectors of slaughter houses. By them in like manner were appointed the chief constable, and sometimes the clerk of the peace.[7] Moreover, the justices are themselves *ex officio* members of the board of guardians, the sanitary boards, and of various other local bodies.[8]

Besides all these powers and many more, it is particularly interesting to observe that the quarter sessions became, in a

[1] The actual management, however, was devolved by the justices upon the clerk of the peace: Gneist, II, 377.

[2] The gradual transference to the sessions of this function of the ancient parish — an important part of the Saxon *trinoda necessitas* — is traced by Brodrick, *Local Government in England*, 20–21; see also Gneist, II, 387–8, 781–816; Maitland, *Justice and Police*, 87. But in some instances, the parish still retains its original highway jurisdiction: Phillips, *Local Taxation in England and Wales*, 476.

[3] Maitland, *Justice and Police*, 87–8; Gneist, II, 396–407.

[4] The various statutes are enumerated by Gneist, II, 382–4.

[5] Gneist, II, 379, 381; Maitland, *Justice and Police*, 87.

[6] By 42 Geo. III, c. 73, and 17 Geo. III, c. 11. Both acts — relating to the inspectors of yarn and factories — are probably obsolete: Gneist, II, 379.

[7] When the custos fails to appoint.

[8] Acland, *County Boards*, 95; Phillips, *Local Taxation in England and Wales*, 478.

certain sense, a legislative body. The former right of the shiremoot to enact by-laws is represented by that of the justices to issue administrative orders; such, until 1889, were those for the regulation of lunatic asylums and the establishment of fees of local officers.[1] During the seventeenth century the original records of such orders throw much light on the economic, religious, and political history of that momentous age. Especially interesting are those prescribing market rules,[2] establishing the wages of laborers and artisans,[3] fixing the price of salt,[4] and enforcing the laws against recusants, non-conformists, and dissenters.[5] These orders reveal incidentally the fact that the justices exercised an active coercive and supervisory authority over the parishes and local functionaries.[6]

4. — In a fourth particular the quarter sessions acquired the attributes of the shiremoot. In the reign of Edward I, the latter body was still the meeting place of the local and imperial jurisdictions.[7] But with the rise of the peace-magistracy the quarter sessions became the regular medium of communication between the crown and the people. Thus the plans of the central administration were at times carried out through letters addressed to the magistrates by the privy council or by the king himself. There seems to have been a studied effort on the part of the Stuarts through this means to strengthen the royal prerogative.[8] By the justices, for instance, demands of purveyance were executed, and benevolences, forced loans, and ship-money collected. Perhaps from no other source can there be obtained so clear a conception

[1] Gneist, II, 379–80. Cf. 51 and 52 Vict., c. 41, sec. 3, vi; sec. 111.

[2] Hamilton, *Quarter Sessions*, 103.

[3] The records of Devon are rich in materials for economic history. See examples in Hamilton, *Quarter Sessions*, 10, 12, 91 f., 97, 100, 163, 272–3, etc.

[4] Hamilton, *Quarter Sessions*, 265, 272.

[5] See especially a long order passed at the Epiphany term in Devon, 1681: Hamilton, *Quarter Sessions*, 182–185; also other examples in *Ib.*, 28, 138, 161, 182, 188, 197, 212, etc.

[6] See also other evidences: Hamilton, *Quarter Sessions*, 18, 102, 137, etc.

[7] Stubbs, *Const. Hist.*, II, 208–16. [8] Hamilton, *Quarter Sessions*, 79–80, 82.

of the extent and character of these encroachments of arbitrary power, or so good an understanding of the mode of procedure employed, as from the records of the quarter sessions.[1]

The organization, whose extraordinary growth has now been sketched in bare outline, remained until a few months since the chief authority in the shire, although with the rise of the guardians of the poor law unions in 1834 its relative importance was considerably diminished.[2] Moreover, the rule of the quarter sessions has been, on the whole, as popular as it has been persistent. And it seems very strange, at first glance, that the body upon which such vast and such heterogeneous powers have been conferred — many of them so at variance with the original object of its creation — should not be dependent upon the suffrage of the community which it governs. In theory, the magistrates are simply royal commissioners — agents of the central authority. What, then, is the secret of their success, of the long abeyance of the *form* of local self-government? It cannot be found in the mere inertia of established institutions, nor in the merely selfish monopolization of authority by a landed aristocracy. On the contrary, it can largely be explained by considerations much more creditable to the justices. Thus the latter have usually been the real, if not the formal, representatives of local sentiment, while, as a rule, they have been unhampered by the crown in their action. Again, as a fiscal board, they have themselves been most deeply concerned in the rates which they levied; for land is the only incident of English local taxation.[3] And, finally, they have administered justice honestly and with tolerable efficiency. "One class of the royal *missi*," says Freeman, writing in 1876, "the Justices of the

[1] On these abuses, for the reign of Elizabeth as well as for those of James and Charles, see Hamilton, *Quarter Sessions*, 6–7, 9, 20 ff., 35–51, 52–56, 65, 110, etc.

[2] Brodrick, *Local Government in England*, 20, 22. On the borough quarter sessions and paid magistrates, omitted here as not essential to our inquiry, see Maitland, *Justice and Police*, 94 ff.; Stephen, *Hist. of Crim. Law*, I, 116 ff.; Brodrick, *Local Govt. in Eng.*, 31 ff.; Bunce, *Municipal Boroughs and Urban Districts*, 279 ff.; Gneist, II, 551–58.

[3] Phillips, *Local Taxation in England and Wales*, 502.

Peace in each shire, have been so multiplied, and their character has been so thoroughly changed, that an assembly of them is practically an assembly, not of royal officers, but of the Thegns of the shire in their local character. A court of Quarter Sessions has become an assembly, whose best rule of action could not be better described than in the words of Eanwene, when she bade the Scirgemot of Herefordshire to 'do thegnly and well.' The shire has become an aristocratic commonwealth, ruled by an assembly not so very unlike what the gathering of the Thegns of Herefordshire must have been in the days of Cnut. No royal *missus* is there, except in so far as all the Thegns have themselves become *missi*. The Thegns alone can speak and vote, but the rest of the men of the shire may, if they think good, look on. And they now have means of influence and criticism, which, though less direct, are perhaps as effectual as the ancient right to cry Yea or Nay. In the judicial business of the court, popular juries, grand and petty, keep up the ancient right of every freeman to have a share in the administration of justice. And the judges of the court are Thegns of the shire, men commissioned indeed by the Crown, but whom no one looks on as royal officers. Indeed, whenever a cry is raised for the transfer of their judicial powers to other hands, it is sought to transfer it to men in whom the character of royal officers shall be more prominent." [1]

Nevertheless, the union of judicial and general administrative powers, of so varied a character, in one body thus composed, came more and more to be regarded as anomalous. At length the demand for their separation and for the re-establishment of popular self-government in the shire found expression in the act of Parliament which went into effect April 1, 1889.[2] By this act the justices in quarter

[1] Freeman, *Norman Conquest*, V, 301–2. Cf. his *The House of Lords and the County Councils: Fort. Rev.*, May, 1888, pp. 601–4; and Bowles, *The Destruction of Self-Government: Fort. Rev.*, April, 1888, pp. 498 ff.

[2] 51 and 52 Vict., c. 41: "An act to amend the laws relating to Local Government in England and Wales, and for other purposes connected therewith." Passed, August 13, 1888.

sessions are allowed to retain only their judicial authority, together with the general execution of certain license laws, and a share in the management of the county police. Nearly all their general civil functions — the control of taxation and finance, the appointment of the treasurer, coroner, and other county officers, the supervision of county buildings and other public property, jurisdiction over weights and measures, the administration of roads and bridges — are transferred to county councils chosen by the people.[1] Thus the cycle is complete. The royal commissioners are once more relegated to their original sphere as peace-magistrates; while the ancient shiremoot is revived, though under a new name and in a new form. Once more the people through their representatives vote taxes and enact by-laws in their own assembly, which again appears as the meeting-point of the national and local organizations.

[1] The county council gains also the management and visitation of pauper lunatic asylums; the establishment and control of reformatory and industrial schools; the division of the county into polling and coroner's districts; and the power to borrow money, audit the accounts of the treasurer, and fix the table of fees of all county officials, save those of the clerk of the peace and the clerks of justices. The appointment of the clerk of the peace, who is also clerk of the council; and the appointment and control of the chief constable and the county police force, and some other functions, are vested in a "joint committee" of the quarter sessions and county council. For a summary of the powers transferred, see Bazalgette and Humphreys, *The Law relating to County Councils* 5–26, 43, 111, etc.; Chambers, *A Popular Summary of the Law relating to Local Government*, 52 ff.; Hobhouse and Fanshawe, *County Councillor's Guide*, 6 ff., 67 ff., etc.

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UNIVERSITY STUDIES.

VOL. I. *JULY, 1892.* NO. 4.

I. — *Notes on a New Order of Gigantic Fossils.*

BY ERWIN HINCKLEY BARBOUR.

How it came about that the wondrous good lands were ever dubbed the 'bad lands' can never be apparent to the naturalist. Still less apparent to him is the usage 'good bad lands' for the very worst, and 'bad bad lands' for the best or least sterile. Here he finds his promised land of buried treasures; or, what is quite as likely, unburied ones, dug out and scattered at his feet by the same Nature which covered them with clays and sands, or with the everlasting rocks themselves. Nature dug generously here; unearthing from the sediment of those ancient lake-beds, great cities, as it were, of buttressed walls, spires, palaces, colosseums, and cathedrals, and, in their winding streets, the scattered bones of their ancient dead.

Our first day among these fantastic ruins showed us strange scenes, and revealed to us gigantic fossil forms as new and as unlike all other forms, living or dead, as are the lands in which they abound unlike all other lands, — strange fossil forms, towering head and shoulders above the most gigantic, and destined to take rank with the most remarkable.

The ground on which we walked, the vertical walls of neighboring cañons and 'draws,' the cores of 'blow-outs,' where the winds had swept away the sand, leaving bare rocks

exposed for many feet, — in all of these could be seen a forest of titanic poles, coiled around about with titanic vines ; all standing in the half-lithified sandstone as erect as when they flourished there. Some, however, coiled about an *imaginary* axis with as great nicety and precision as the others and stood quite as erect.

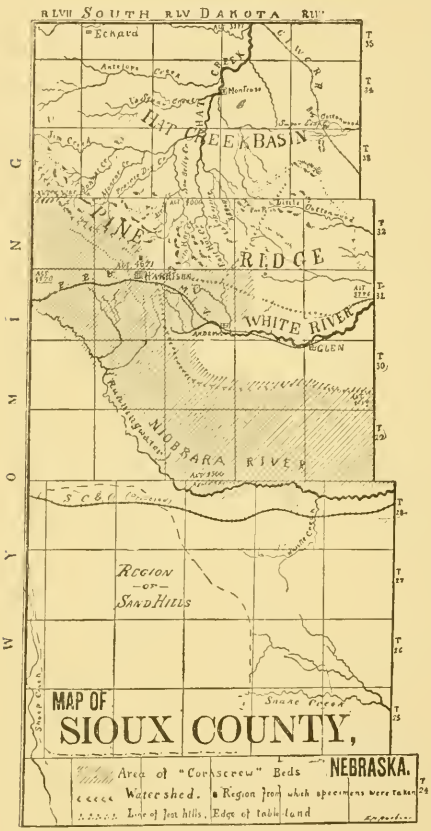


Fig. 1. — Map of Sioux County, Nebraska, showing, in the shaded portion, the area of the Daimonelix or fossil "corkscrew" beds. Drawn from a map prepared by Judge S. Barker, of Harrison.

Among these ruins where softer strata give way first, the roofing rocks stood as if supported by magnificent spiral columns. Elsewhere these columns stood solitary and alone, or, yielding to the never-ending action of the elements, toppled over and are going to decay. All the combined geological forces, chiefly the forgotten raindrops, incessantly excavate, and at the same time disintegrate, these organic columns.

The numbers we saw in a region circumscribed by a few miles are indicative of the countless numbers that must abound in the broad area of the several hundred square miles in which they are found. Why so conspicuous a feature of the landscape has remained unnoticed and unmentioned hitherto, is as mysterious as the fossils themselves.

Notwithstanding its inelegance, the name 'Devil's corkscrew,' bestowed by the ranchmen, is appropriate and descriptive, as the illustrations, or better still, the specimens themselves, will show; and in proposing the name Daimonelix, it is the author's intention to preserve their early name as far as seems admissible.

Colossal corkscrews they are, and they have been turned in a lathe almost as true as that of the veritable corkscrew which they so resemble. There is, however, this essential difference between the two: screws generally turn in the one conventional direction, but the fossil screw is right-handed, or left-handed, indiscriminately, setting heliotropism at variance. The name is still farther justified by the immense transverse piece, analogous to the handle of an actual corkscrew. These great transverse pieces, rhizomes or underground stems, or whatever they are, project in all directions out of the banks and bluffs like logs, with which they have been confounded. Some noted were as large as ordinary barrels, others as large as hogsheads, or three feet in diameter, that is as large through as old-time logs, or to use a commonplace measuring-rod, as thick as ordinary house doors are wide and several inches to spare.

Two laws may be enunciated here.

(1) *The fossil corkscrew is invariably vertical.*

(2) *The so-called rhizome invariably curves rapidly upwards, and extends outwards an indefinite distance.*

All of this type seem cast in the same mould (Plates I., II., III.).

As for a second type, — the simple unsupported spiral, — there is the same perpendicularity, but the basal or underground portion of these is in many cases entirely wanting, in others present, in still others present but extraordinarily modified. (Figs. 15, 16, and 17, respectively.)

Several of this type, as we dug downward, blended into the sandstone matrix and became lost, or were cut off as abruptly as if shorn by the same force that had robbed the top of its glory.

Several were attached to the familiar transverse portion, as in the first type, — a fact not known till the third expedition was sent out and more exhaustive search was made, revealing two examples. One spiral secured on the third or Morrill geological expedition by Mr. Thomas H. Marsland, when dug out, instead of ending abruptly as if cut off, as we might have expected from other experiences, or instead of ending in a transverse portion as some do, terminated below in three massive spherical enlargements. (See Fig. 17.)

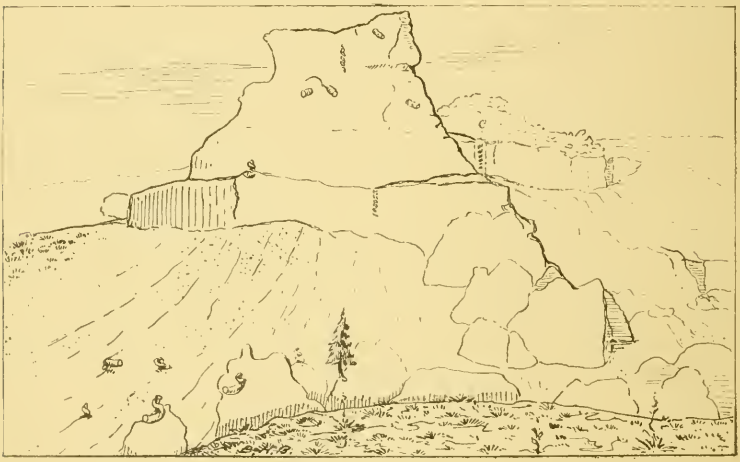


FIG. 2. — Eagle Crag, seen from the north, showing the Daimonelix or Devil's corkscrews in place. *C*, see Plate IV., also Fig. 4.

Can it be, then, that these great "twisters," instead of being fucoids or sponges growing from below upward, are roots, boring their way from above downward, and becoming so completely modified as to lose their identity as roots?

The invariable perpendicularity of the Devil's corkscrew suggests the possibility that sedimentation was going on at a far livelier rate than supposed, otherwise these specimens must have rotted away or toppled over in spite of any preservative quality of the water.

These corkscrew beds are noticeably homogeneous and even throughout, as if the most uniform and constant conditions prevailed during the period of deposit. That sedimentation should have proceeded with such rapidity as to surround any organism and bury it many feet in sand during the relatively short season in which it is possible for an organism to preserve its integrity and equilibrium, argues for waters so sediment-laden that it is to be marvelled at that life could be sustained there at all.

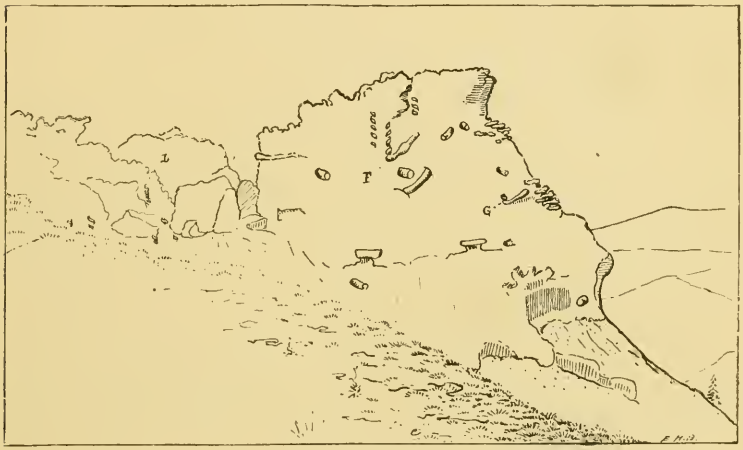


FIG. 3.— Eagle Crag, viewed from the east, showing Daimonelix in place. *D* is shown in Fig. 15 ; *F* in Fig. 7 ; *G* in Fig. 6.

We know of not less than fifteen feet of sediment surrounding some specimens. The fact that the tops of these corkscrews are always missing may be accounted for by this rotting away before it was incased in a bed of sand.

Strictly speaking, these corkscrew beds can no more be called bad lands, than foot-hills can be called the mountains, though merging into them and of the same formation. Besides, it might convey the false impression that a particularly fertile region was sterile. To the contrary, these beds are exposed in extensive 'blow-outs.' Those visited were near

Harrison, Nebraska. At Eagle Crag, but a mile and a half north of Harrison, the conditions were most favorable, and here our best specimens were obtained.

I visited this spot for the first time June 30, 1891, in company with Mr. Charles E. Holmes (Yale, '84), securing at that time one specimen (see Plate I.) and marking many others; intending to return and work these fields over at the end of our expedition in the bad lands of Nebraska and South Dakota. Failing in this, I returned May 1, 1892, and in spite of the storms and blizzards which prevailed, was enabled to collect and ship within a week a ton of these extraordinary fossils, though forced by the blizzards and drifting snow to abandon some which we had quarried out, and were ready to pack for shipment.

The third or Morrill expedition, consisting of a party of six, sent out in the interest of the State University, and at the expense of the Hon. Charles H. Morrill, the author being in charge, camped June 21st in these new fossil beds, opened and made known the previous year, and devoted a fortnight to their study.

Later, these beds were explored along Pine Ridge — the northern limit — to Squaw Cañon, a distance of some twenty miles, and as far south as the Niobrara River, about twenty-five miles; thence along the Niobrara, the southern limit of the beds.

These lines include several hundred square miles of known Daimonelix or Devil's corkscrew beds. While Pine Ridge is plainly the northern limit, and the undetermined eastern and western limits are roughly the eastern and western county lines respectively, yet the Niobrara River, while apparently the southern boundary, is not strictly such.

Viewed as a whole this is an extensive field. Its fossils are presented to view in the greatest numbers along the northern and southern borders, where the erosion and transportation is most extensive, and lost sight of in the grass-covered prairies between, save where exposed in occasional draws, bluffs, and blow-outs.

It was a very apparent fact — if first observations are reliable — that the northern or Pine Ridge corkscrews, so peculiarly mathematical, vertical, and regular, become, on going south to the Niobrara, far more massive, much less regular, and tend somewhat to lose the characteristic perpendicularity.

The Pine Ridge Daimonelix — specimens of such magnificent proportions as to rank with the most gigantic fossils known to science — become simply huge as we follow them southward to the Running Water or Niobrara River.

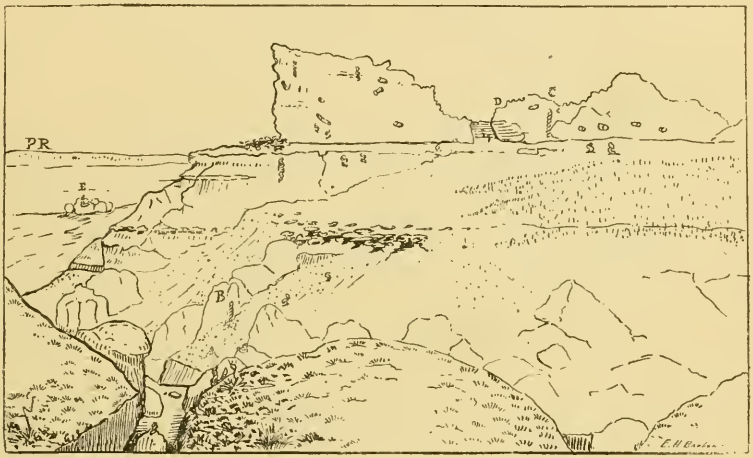


FIG. 4. — Eagle Crag, from the west. *A* is shown in Plate I.; *B* in Plates II. and III.; *C* in Plate IV.; *D* in Fig. 15; *E* in Plate V., Figs. 27, 28, 29.

The transverse portion of some specimens noted here was three feet in diameter. These specimens had passed the limit where transportation was practicable, and no attempt was made to dig them out.

Those collected, though of necessity much smaller, offered not a few difficulties, even when broken into smaller pieces for easier handling.

If puzzled before, we were even more confused after the third trip. And after considerable study and repeated consultations with the foremost naturalists of the country, east and

west, I believe that no one, till further facts are obtained and until the material now brought together is worked out, can make any positive statement as to what these extraordinary fossils are. Accordingly, I shall treat of them cautiously and tentatively, awaiting the discovery of additional facts, and shall withhold for the present the classification which I had hoped to offer.

That they could ever have been formed by burrowing animals, by geysers or springs, or by any mechanical means

FIG. 5. — The right bank of a small draw near Eagle Crag, showing the more important ones of the many corkscrews in sight when sketched.

whatever, is entirely untenable. Neither are they accidents, mere freaks, or concretions. Their organic origin cannot be questioned, — as it seems to others who have seen them as well as to myself.

If they are sponges, — as I am inclined to believe, — then Miocene sponges are all the more remarkable, judging by our present diminutive fresh-water varieties. Moreover, the existence of spicules is not demonstrated, though certain not infrequent rod-like bodies may prove such. Add to this the

improbability, if not impossibility, of sponge-growth in waters so laden with sediment. Besides, in a section, unmistakable plant cells are shown, — which cannot, however, establish their vegetable origin, since this slide alone out of six shows any such structure ; and it is quite possible that modern rootlets could have made their way into this particular specimen sectioned. On the other hand, all the slides show certain smooth, spindle-shaped rods, which are suggestive, at least, of sponge spicules. Whether we accept the animal or vegetable theory, the difficulties are about equal.

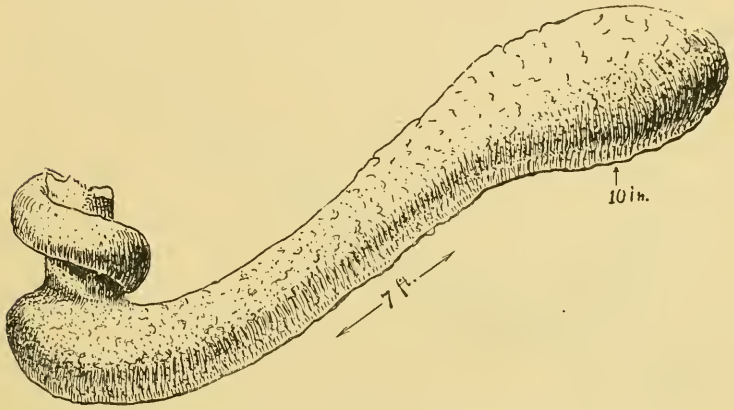


FIG. 6. — "Underground stem" of Daimonelix, showing greatly enlarged extremity. See *G*, Fig. 3.

Reference to the map of Sioux County, kindly furnished me by Judge Barker of Harrison, shows the Devil's corkscrew beds to cover an area equal to two or three hundred square miles ; the eastern and western limits being in some doubt. These beds, as the map (Fig. 1) will show, follow the divide between the White and the Niobrara rivers, which bound the region on the north and south respectively. While my collections were made chiefly at Harrison at the extreme northern limit, and comprise very large and excellent specimens, yet some twenty miles south, at the well-known James Cook ranch at Agate Springs, these corkscrews are far larger than those found near Harrison.

As to numbers and distribution, the fossil corkscrews are scattered pretty evenly throughout these beds, and wherever fully exposed, it is plain they flourished in thickly crowded forests of vast extent. In one case six grew almost in contact; in another, ten were counted in a space eight yards long by two yards wide. Along the well-washed banks of a small draw, in a space about two hundred by thirty feet, some forty large specimens were counted and ten dug out. See Fig. 5.

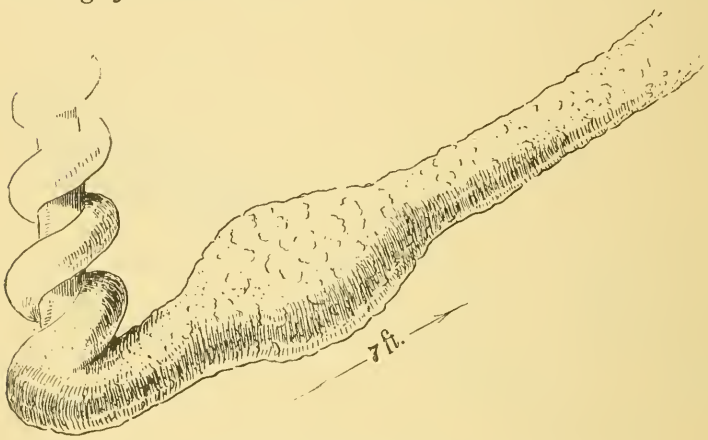


FIG. 7.—"Underground stem" of Daimonelix, showing enlargement of shaft. See *F*, Fig. 3.

Barring many other examples, it is plain that if all the fossil corkscrews in a given region could be exposed to view, it would make a forest of ornamented spiral trunks, vying in beauty and magnificence with the fluted columns of the Coal Age. An attempt has been made in Figs. 2, 3, 4, and 5, to show in simple outline the general appearance of the landscape, the frequency of occurrence of the Devil's corkscrew, likewise the part they play in the landscape at and about Eagle Crag. In the illustrations many corkscrews are necessarily concealed behind rocks and other obstructions.

Viewed from the north, Eagle Crag shows corkscrews and their stumps, all the way from the base, in the extreme fore-

ground of the picture, to the top, a thickness of about one hundred feet of soft sandstone. Seen from the east (Fig. 3), a similar array is presented. *F* and *G*, underground stems, shown more in detail in Figs. 7 and 6, are almost weathered out and ready to fall. At *F*, it is interesting to observe two corkscrews in close proximity, one twisting to the right, the other to the left. At *D* an excellent specimen (similar to Fig. 24, save the whorls were reversed, and there was no ridge) was dug out and buried again, the drifting snow hindering us from boxing it.

It is from the west that Eagle Crag presents its most interesting and diversified appearance. (See Fig. 4.) The cork-

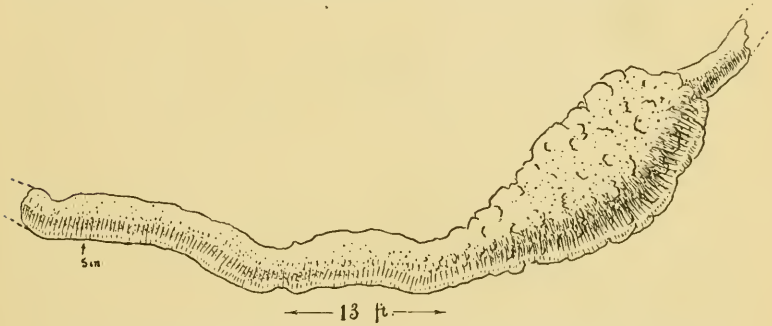


FIG. 8.—"Underground stem" of Daimonelix, showing peculiar enlargement.

screws are numerous and large, and especially accessible here. They can be seen all the way from the one in the bottom of the small cañon in the foreground at the left to those in the top of the Crag in the background, a thickness of one hundred feet. At *A* my first specimen, shown in Plate I., was taken in 1891. At *B* is shown a large and excellent specimen, figured in Plates II. and III. At *C* an open corkscrew, nine feet high (plus an unknown amount not yet quarried out) was secured. (See Plate IV.) At *D* a similar one was found. At *E* (in a small blow-out) was found a corkscrew entirely weathered out, figured in Plate V., Fig. 27.

Pine Ridge is seen at *P. R.* Just to the right of *C*, corkscrew logs project like so many guns in a fortress. These

great underground stems arrest attention at once; for although the average diameter may be about eight or ten inches, yet I measured one here — an immense log of a fossil, some eighteen inches through. I have represented, in Figs. 6, 7, and 8, several forms noticed, and others will be seen in Plates I., II., and III. Figs. 6, 7, and 8 show for themselves certain peculiarities and enlargements. Fig. 8 represents one thirteen feet long, with evidence of several feet more, having at its upper end a great, knotted, wrinkled, irregular, sponge-like enlargement. These stems, so hard and so easily distinguished from the imbedding matrix, begin toward their extremities to graduate insensibly into the surrounding sandstone, just as if before fossilization the "underground stem," like modern ones, while growing forward, had rotted in the rear. The walls of these stems, which are thick and fairly solid and of a chalk-white color, encircle a core of sandstone, perforated more or less by ramifying tubes and tubules.

In nearly all specimens the large tubes and cavities are filled with an interesting deposit of gelatinous silicic acid, of about the hardness and texture of paraffine or castile soap. Occasionally this gelatinous silica is deposited in sheets five to six inches wide by one and one-half inches thick, lying medially and horizontally in the underground stem. Its color ranges from aurora red to pink, blue, gray, and white, being highly opalescent in some cases and dendritic in others. On drying, the unbroken homogeneous mass is divided by shrinkage cracks, and losing its color, becomes white.

What added not a little to the difficulty of the whole problem was the discovery of a finely preserved rodent's skeleton in the great stem of one specimen (Fig. 9).

This rodent is about the size of a 'jack rabbit'; its incisors are large proportionally; sagittal and occipital crests high and sharp; shoulder girdle apparently mole-like.

How or when it came there is explained perhaps by the subsequent discovery of a massive fragmentary fossil corkscrew, found in the bluffs bordering the Niobrara. It is

evident that the living corkscrew had fastened upon the submerged skeleton of a mammal about the size of a tapir or small rhinoceros, and spreading out and growing over it had bound in place vertebrae, ribs and limb bones, almost inclosing them.

From this, then, it may be reasonable to suspect that the rodent already described found entirely within the walls of the "underground stem" of a fossil corkscrew, had not burrowed there, but rather that its skeleton, submerged in miocene waters, became a suitable anchorage for the living, growing Daimonelix, which eventually envelóped it.

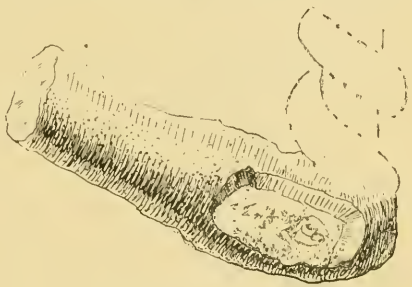


FIG. 9. — "Underground stem" of Daimonelix, showing a skeleton of a rodent partly worked out.

While the organic nature of these corkscrews cannot be backed as yet with stronger proof than the evidence from certain plant-cells already mentioned, and that of certain scattered rod-like bodies, possibly spicules, yet no one who has ever seen the characteristic intricate network of minute silicious tubes will grant that they could ever have been the burrow of an animal (Plate III., Fig. 21).

This incomplete, strictly provisional classification is intended to be suggestive rather than final.

ORDER.	FAMILY.	GENUS.	SPECIES.
———	Daimonelicidæ	Daimonelix	circumaxilis
			bispiralis
		———	anaxilis
			robusta
			carinata
	———	———	———
			———

Daimonelix Circumaxilis, gen. et sp. nov.

This is the largest species of the genus as far as known, and the first I obtained. It is characterized by a perpendicular axis, supporting a spiral, and having a greatly enlarged, obliquely ascending, underground portion. The axis is regular and often sharply defined; the spiral, strongly marked and wrinkled, with transverse ridges on the superior surface; smooth, flat, or square-cut on the inferior surface. (See Figs. 27, 28, 29, Plate V.)

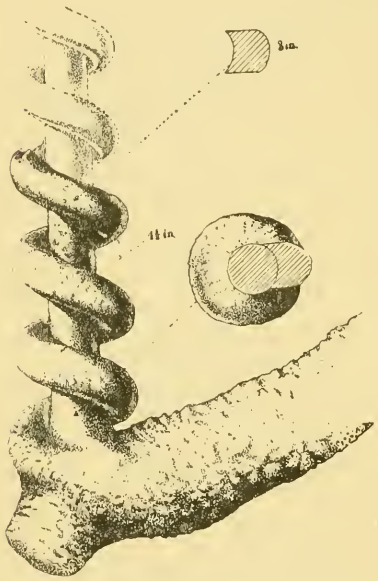


FIG. 10.—A noticeably regular specimen of Daimonelix circumaxilis. Sketched from a specimen in the collection of Mr. C. E. Holmes.

The species is further characterized by an intricate net-work of silicious tubes, not unlike a mass of tangled moss, particularly conspicuous on the underground or transverse portion (see Plate III., Fig. 21) and throughout the spiral. For the foregoing characters, see Figs. 13 to 17, Plate I.; Plates II. and III.; also compare Figs. 27, 28, 29, Plate V.

Figs. 14, 15, and 16, Plate I., give three aspects (viz. opposite sides and a back view), one section, and a quarry scene of the first specimen I secured. We dug out nearly seven feet of the underground portion. Finding it impossible to go further, and not reaching the end, we broke off about three feet of it, leaving the rest in the bank. This portion, temporarily abandoned, was secured immediately on entering the field with the Morrill expedition. It measured five feet

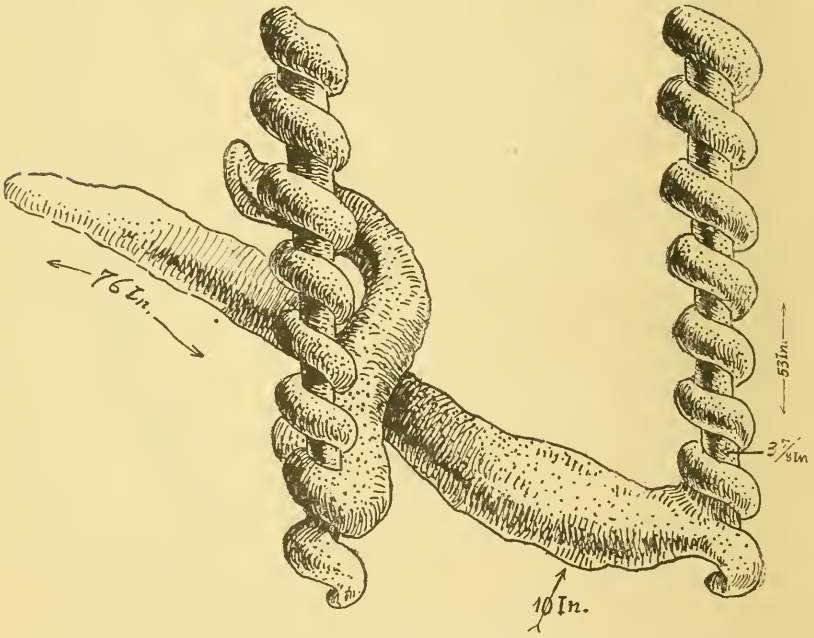
and eight inches, thus making the entire length of stem eight feet and eight inches long. The type specimen is now complete.

One of the best and most regular specimens (dug out at *E*, Fig. 4) was procured by Mr. Holmes, and is shown in Fig. 10. Plates II. and III. show a large and excellent specimen ; the several views are sufficiently descriptive in themselves. The surroundings of this specimen in the quarry are shown in Plate II., also in Fig. 4 at *B*. One interesting feature of this specimen, in addition to those common to all, is the eccentricity of the axis with respect to the spiral. It is apparent, even in the greatly reduced cuts, that each whorl is full on one side, but scant on the other, and that it is consistent in this irregularity.

It deserves passing notice that from top to bottom the whorls of this corkscrew varied from a plumb line but one-eighth of an inch in the case of one coil, in others still less. The corrugated upper surface, and the flattened lower surface, and other features already mentioned, are sufficiently explained in the several cuts of the plate. Fig. 18, Plate III., is a side view ; Fig. 19, a view from above ; Fig. 20, a view from below ; Fig. 30, Plate V., a section from bottom. This is the finest specimen of the species found as yet. Several fragments, weathered from the top, when added, will increase the number of coils by one, and change the present height (five feet) to a full six. The transverse portion is about seven feet long, and in its greater diameter eleven inches. The net-work of silicious tubes, which is a strikingly characteristic feature, is most admirably marked in this specimen, and an attempt has been made in Fig. 21 to represent it.

The Figs. 27, 28, and 29, Plate V., are intended primarily to illustrate on a larger scale the upper and lower surfaces of the whorls. At the same time is given in Fig. 28 a fairly accurate idea of a cross-section of axis and coil. I find that, although fused together so that post and vine are one, there is yet plainly a line of weakness between the two. The corkscrew

of which Fig. 27 is a portion was found some seven or eight feet above the ground, in the nearly vertical walls of a small 'blow-out' (Fig. 4, *E*). It was so completely weathered out that it fell with violence on my head with the first blow of my workman's pick. But a few feet to the right of this specimen could be seen others, the most noticeable being an immense corkscrew log fully eighteen inches in diameter.



FIGS. 11 and 12. — Two views of an excellent example of Daimonelix circumaxilis. Sketched in the field.

A beautifully regular and symmetrical specimen belonging to this genus was secured on the last expedition by Mr. Thomas H. Marsland. The screw enlarges noticeably from the bottom to the top, and with a nicety not to be portrayed in a drawing made in the field. (See Figs. 11 and 12.) It seems deserving of passing notice that the basal coil continues for nearly two turns below the stem, a peculiarity

noticed in this specimen first. The transverse portion is S-shaped, a form not infrequently met, though the dominant form is an upward curving stem, lying in the plane of the spiral.

One massive specimen, secured by the Messrs. Morrill and Everett on the last expedition, shows this interesting pecu-

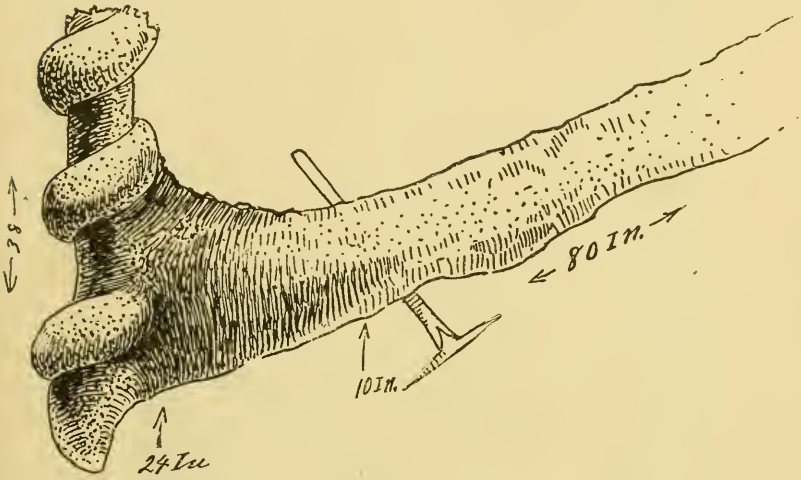


FIG. 13. — Specimen of Daimonelix circumaxilis, buttressed by the expanded transverse portion.

liarity, that it is admirably braced and buttressed by the transverse stem, which is so expanded vertically that it abuts against three whorls instead of one, as is customary. (See Fig. 13.)

Daimonelix bispiralis, gen. et sp. nov.

The difference on which this species is based, is that of a double spiral encircling the axis. In other respects it resembles the foregoing species. Inasmuch as the specimen was weathered out, it is short and fragmentary, but shows its characters sufficiently well for all that. See Fig. 14 (found at *E*, Fig. 4).

Daimonelix anaxilis, gen. et sp. nov.

The characteristics of this species are a plain helix without axis, and, as far as observed, no transverse portion; a greater smoothness of surface and roundness of form than in either circumaxilis or bispiralis; a slenderness making it fragile compared with the above robust species. All known indi-

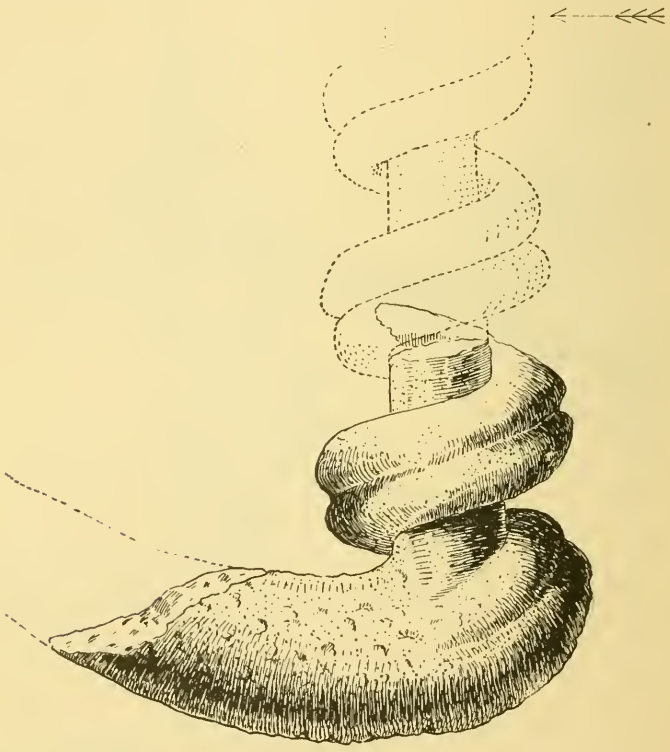


FIG. 14. — Daimonelix bispiralis, showing double spiral. Sketched from nature.

viduals of this species seem to have exceedingly thin walls, composed like all, of silicious tubes. As this specimen was abandoned perforce for the time, owing to the drifting snow, no better figure than that from sketches in the field can be offered. See Fig. 15, and compare with Fig. 24, Plate IV.,

noting the reversed whorls. The imaginary axis about which the spiral is wound, is a cylinder three to four inches in diameter, while that of the similar form, *Carinata*, is an inverted cone with a base two to three inches in diameter.

Probably the finest and most showy specimen of all as yet found, and possibly one of the best that ever can be found, was secured on the Morrill expedition by Mr. Frederick C. Kenyon. It consists of a pair of fossil corkscrews opposed to one another, yet growing side by side in such close proximity as to have completely coalesced along the line of contact.

Fig. 15.— Daimonelix anaxilis, partly worked out. Location in quarry is shown in Fig. 3, *D*.

The corkscrews of this exceptional pair are large and tall: the one, a nearly perfect specimen, being so regular and symmetrical; the other ragged and faulty, yet bidding fair to be of the greater interest on this very account, when the matrix is properly cleaned from the specimen. In blasting away a troublesome portion of the bluff, one of the pair was slightly injured before it was discovered that there were two instead of the one we were quarrying out. The more nearly perfect of the two has thirteen whorls, and, as can be seen, expands noticeably from bottom to top, contrary to others which appear to taper upwards or else maintain a uniformity throughout. (See Fig. 16.)

This specimen should probably be referred to this species.

Daimonelix robusta, gen. et sp. nov.

This species — and from all observations it seems a distinct species — differs from the foregoing in its marked roughness, greater size, close coils, and powerfully thickened

walls (see Figs. 25, 26, Plate V.). The stony walls of this specimen are well shown in Fig. 26, Plate V. The wall varies from $\frac{1}{4}$ to $1\frac{1}{4}$ inches in thickness. The walls of most specimens of the genus resemble in appearance and texture loosely aggregated particles of lime. Here, however, the walls are quite compact and stony. This specimen, together with many fragments which will restore one or two more whorls, was

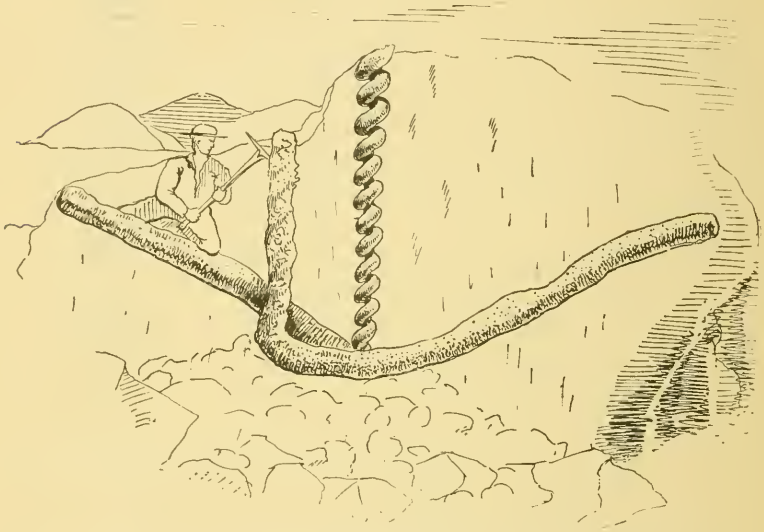


FIG. 16. — Daimonelix anaxilis, as seen in the walls of a blowout when nearly quarried out. Sketched in the field.

found weathered out. Examination of the section (Fig. 26) will show the wall, and the greater, and some of the lesser, thick-walled tubes. Tubes run all through the specimen. Not being confined to the surface only, how can it be a burrow?

Daimonelix carinata, gen. et sp. nov.

This species, which is the tallest, most shapely, and interesting of the family, is distinguished by a strong *carina*, or keel, which runs along the lower edge of the upper coils, and

along the middle or upper edge of the lower ones. The imaginary axis of this great spiral is an inverted cone with a base of about two inches. As the small sections will show, the diameter of the coils increases from above, downward. The specimen, including fragment, is nearly nine feet high, and an unknown amount still remains in the ground. Its whole effect is that of some magnificent bryozoan, though on a scale far grander, and on a plan more generous and imposing than that of any fossil Archimedes ever found. Toward the bottom certain rough pillars or posts are thrown out, as if to lend additional strength to the unsupported helix as the superincumbent weight increases. Transverse sections are exhibited in Plate IV., and one on a larger scale in Fig. 18. Within are two large, thick-walled tubes. These extend through the lower fourth of the specimen.

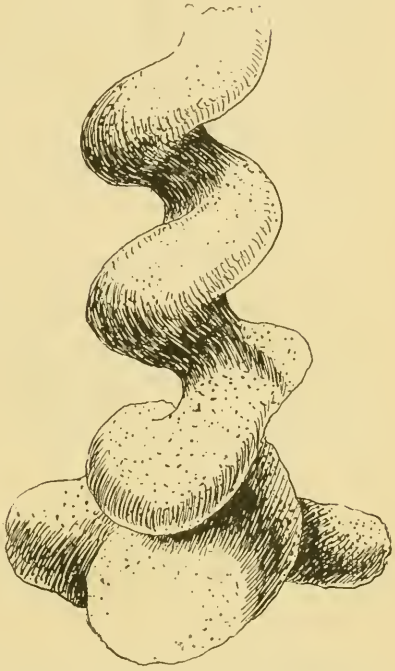


FIG. 17. — Specimen of Daimonelix anaxilis, with transverse stem modified into three spherical enlargements. Sketched in the fields.

Daimonelix.

This corkscrew, the smallest variety yet found, is characterized by its rapid pitch of screw. Inasmuch as the specimens in my collection, and others noted in the field, were fragmentary, no further description will be offered until studied further. See Plate V., Fig. 31.

One very peculiar form which I shall leave unnamed, and but briefly mentioned, awaiting further study, is shown in Plate VI., of which Figs. 33, 34 show enlarged views of the processes of such forms.

In Fig. 33 there is a certain parallelism associated with a crossing and intertwining of the tubes, suggestive of the silicious framework of a Venus Flower-basket on a large scale. The wrinkled surface of Fig. 34, quite commonly met with, has a sponge-like look, as has the whole specimen. Aside from this superficial appearance there is no evidence that these are sponges, as I have suspected them to be. The structure of this genus is identically that of the *Daimonelix*. This specimen, Fig. 32, stands as it did in the quarry. As to size, they are about two to three feet long, and three inches in diameter.

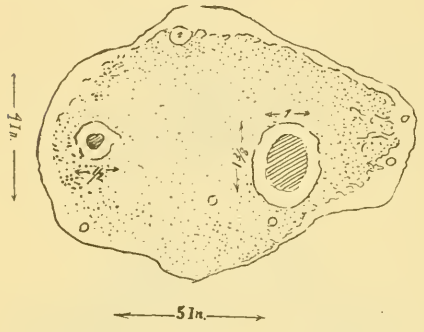


FIG. 18. — Cross section of Daimonelix carinata, near the bottom. (See last section, Fig. 24, Plate IV.)

In my collection there are six or eight individuals of a form akin to the above, but not sufficiently worked out for more than a mere notice. They coil about and branch irregularly, maintaining in all cases a certain perpendicularity. They are about one-half to three-fourths of an inch in diameter, and one to two feet or more in length. The structure of this species is represented fairly well by that of Fig. 33, Plate VI.

On entering upon the last expedition it was confidently hoped that the obscurity shrouding the origin and nature of these fossils could be cleared away. Instead, however, it was the decision of the members of the expedition that each day's work but heightened the difficulties.

My collections were made between the first of May and last of June, so the shortness of time at my disposal for their study, coupled with the interference of college duties, has rendered it impossible to understand, much less to compass, the subject. However, these extraordinary and anomalous forms are of such absorbing interest that I cannot believe it untimely to offer the present suggestive rather than complete paper, which, if nothing more, must direct the attention of palæontologists to this remarkable new fossil.

The superficial and gross structure of new forms necessarily engages attention first, and later a study of the minute structure will determine more definitely their place in the economy of nature.

NOTE. — Owing to delay of publication, it has been possible to add to this paper, bearing date of June 1st, brief mention of the last expedition, even after the article was in type.

EXPLANATION OF PLATES.

PLATE I., *Daimonelix circumaxilis.* A quarry scene; three aspects, and a section of Daimonelix. Since the plate was made, the transverse stem has been dug out, and the original specimen is now complete.

PLATE II. A quarry scene, showing a Devil's corkscrew, Daimonelix, nearly worked out. A cañon to the left. See same specimen in Plate III.

PLATE III., *Daimonelix circumaxilis.* Fig. 18, side view; Fig. 19, viewed from above, showing corrugation on upper surface of coils; Fig. 20, viewed from below, showing square-cut lower surface of coils; Fig. 21, the network structure of Daimonelix, about natural size.

PLATE IV., *Daimonelix carinata.* Figs. 22 and 23, quarry scenes; Fig. 24, same cleaned. Several sections are shown.

PLATE V., Fig. 25, *Daimonelix robusta*, with section of the same showing thick wall and tubes.

Figs. 27, 28, 29, show the upper and lower surface of the coils of Daimonelix, as well as a section of "post" and "coil" in 28. Fig. 30, section of Fig. 18, near the great stem, showing eccentricity of coils. Fig. 31, smallest Daimonelix found, smallest species found as yet.

PLATE VI., *Undetermined sponge-like mass*, with protuberances more in detail in Figs. 33 and 34.

Plate I.

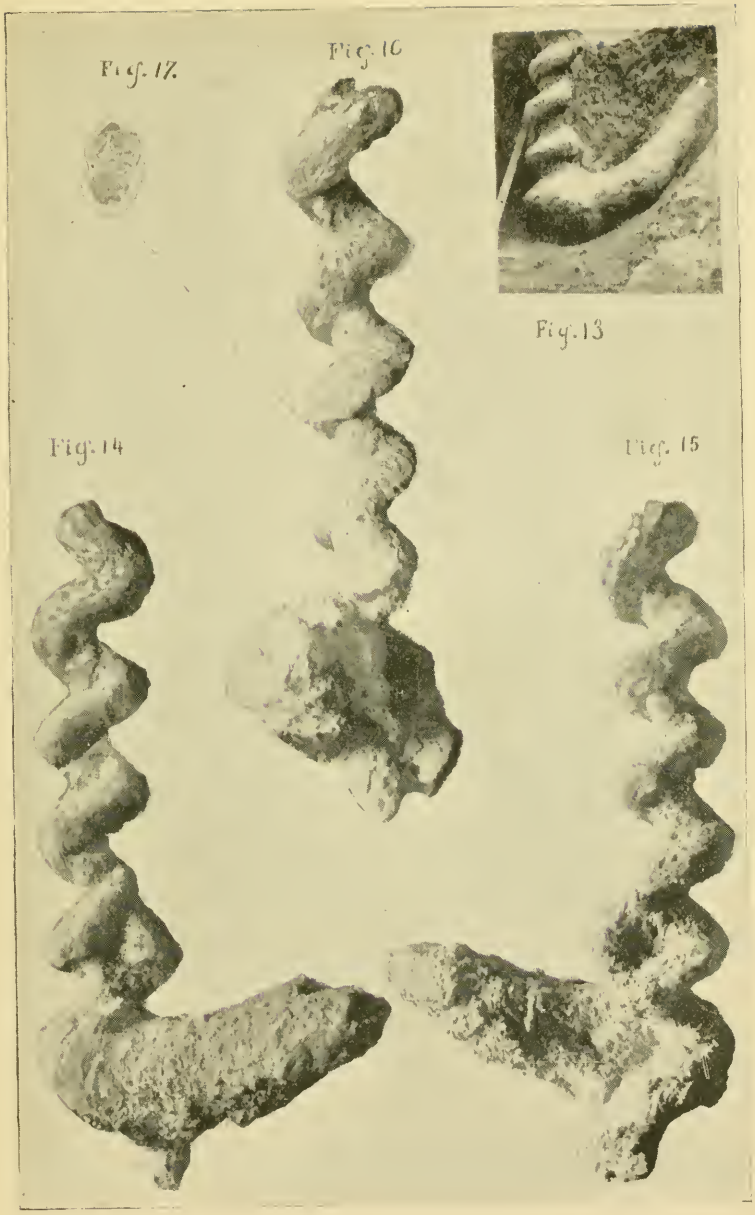


Plate II.

Plate III.

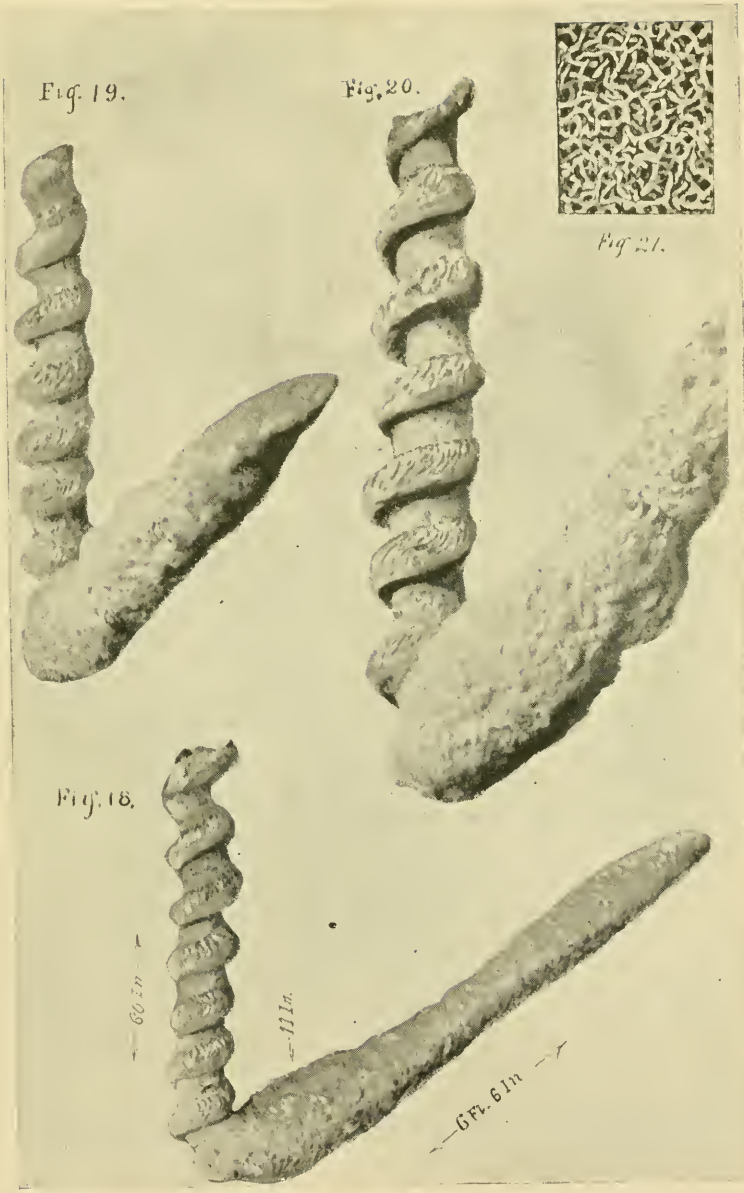


Plate IV.

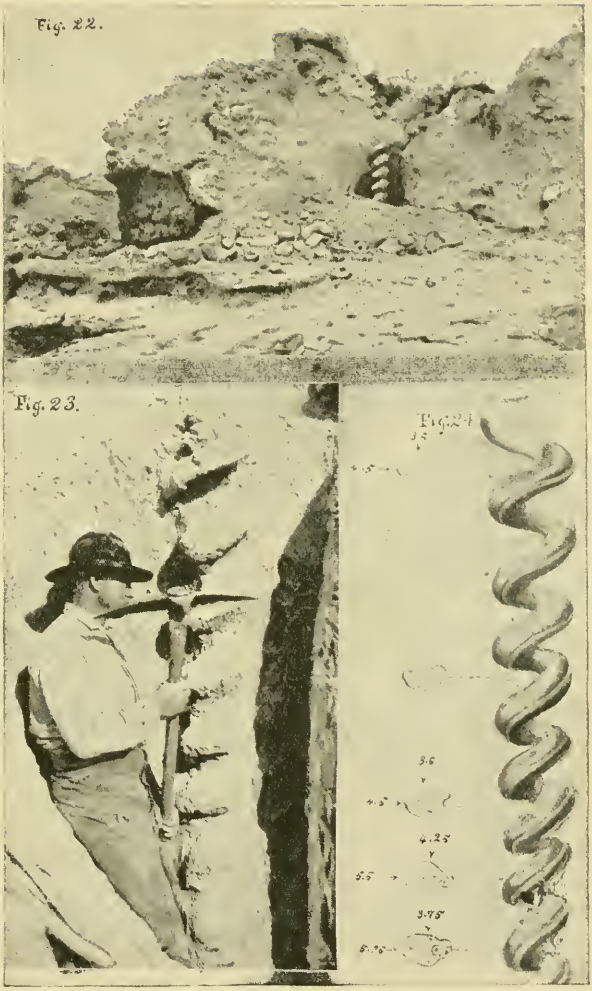


Plate V.

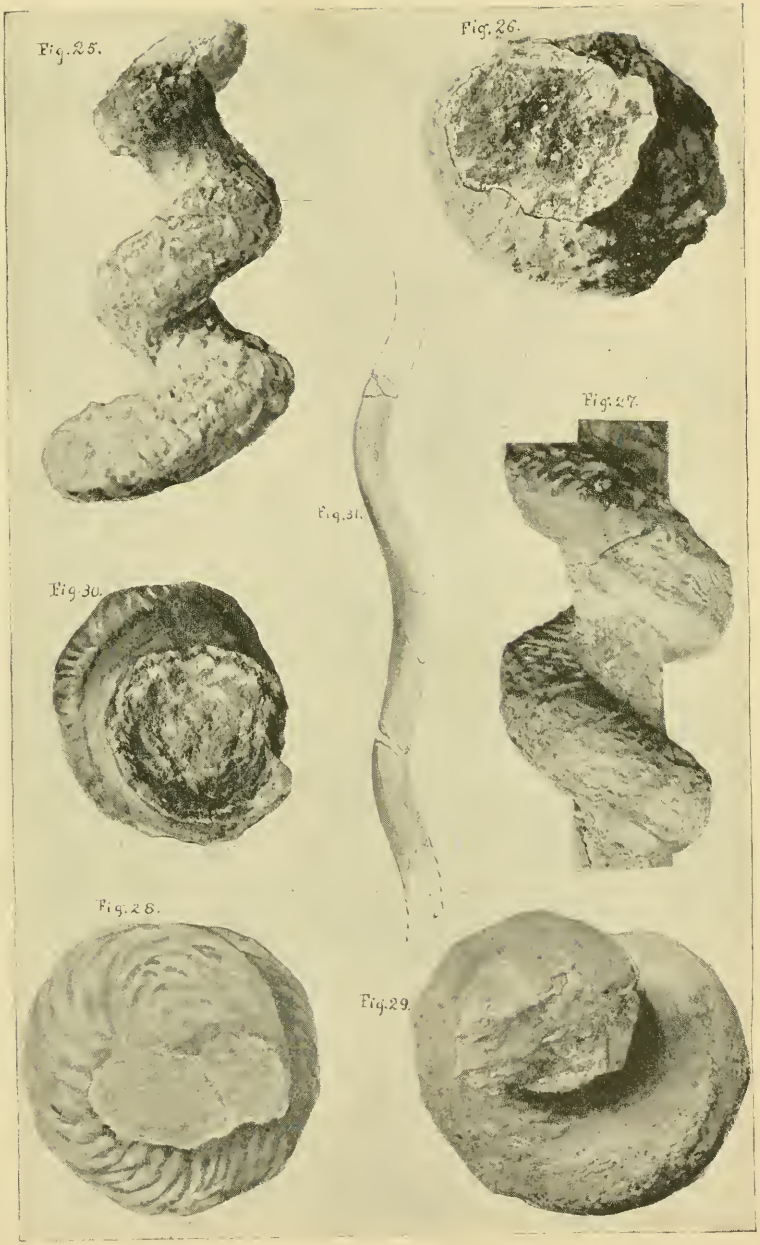
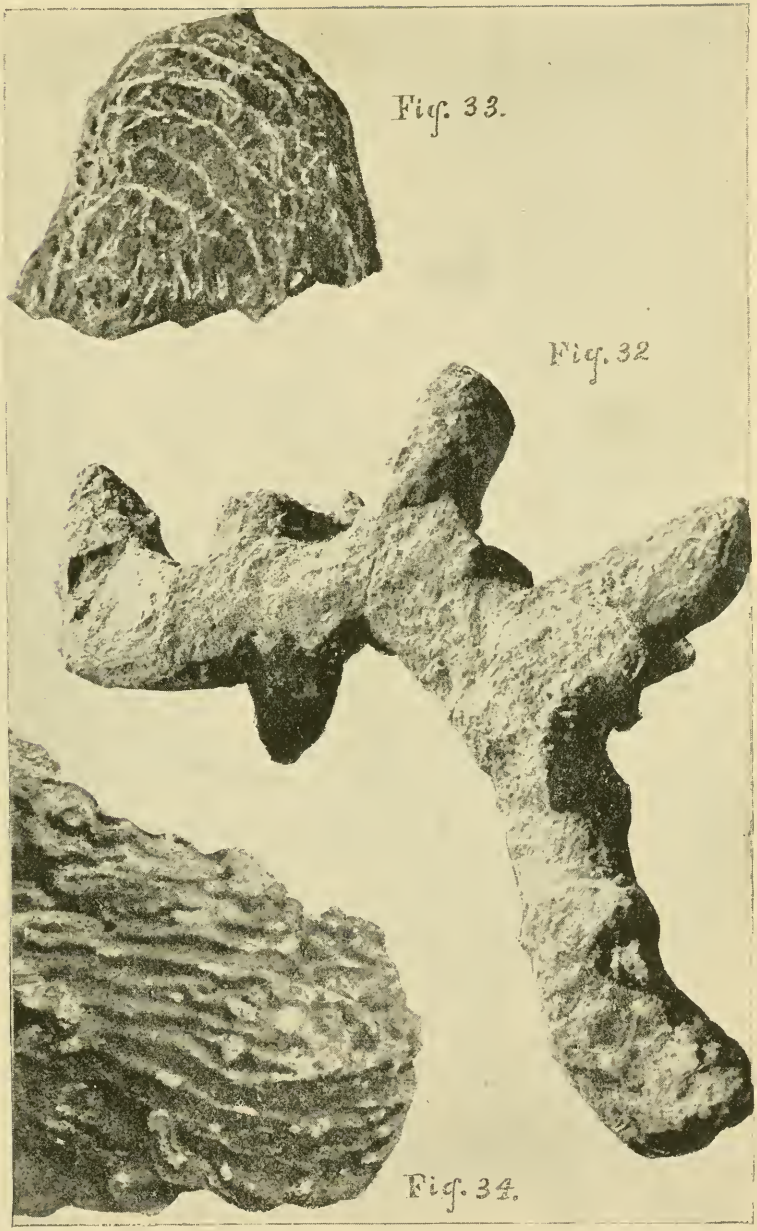


Plate VI.



II. — *On Certain Facts and Principles in the Development of Form in Literature.*

By L. A. SHERMAN.

Some ten years or more ago, on first attempting to teach English Literature historically, I found my attention peculiarly drawn to the differences of form between the sentences of More, Hooker, Lyly, and other early prosaists, and of approved stylists in our own age. Here was clearly an organic and sustained development, yet without scientific recognition of a single fact or principle of change. It seemed that something might easily be done towards determining the course of an evolution so evident and remarkable. But I had, or believed I had, no leisure for serious study of the subject, and found my interest inadequate to more than fitful theorizing as to what might one day be found at bottom. Certain phases in the development seemed probable enough, and from time to time I ventured talking incidentally to my classes concerning the structural reforms which must have preceded or enabled the simplicity and energy of our best modern prose. This was in reality, of course, much as if some barber surgeon of the middle age had assayed to divine and declare the processes of organic chemistry or embryology, and I think I realized the absurdity of it to some degree. At length it occurred to me it should be no long task at least to ascertain approximately how much the English sentence had shortened since the beginnings of modern prose. So I began simply counting the number of words in the periods of Chaucer, Fabyan, Ascham, Spenser, Lyly, and Joseph Hall, in order to determine an average for each and for the period in general, as means of comparison with later times. In this attempt I realized at once, what I had failed to comprehend before, that the punctuation in early writers is often signally false to both form and sense, therefore could

not fail to misrepresent the authors and period in hand. But all such considerations, until some sort of foothold might be reached, were disregarded; a period as found was taken as a period, no matter if beginning with a *which* or *when*, and ending without principal verb. The summaries obtained were as follows: —

CHAUCER.

(*Tale of Melibeus.*)

First hundred periods . . .	51.08
Second " " . . .	42.28
Third " " . . .	49.78
Remaining forty " . . .	23.45
Average 340 periods	48.99

ASCHAM.

(*Toxophilus.*)

First hundred periods . . .	41.98
Second " " . . .	43.71
Third " " . . .	46.43
Fourth " " . . .	49.81
Fifth " " . . .	66.08
Average 500 periods	49.60

LYLY.

(*Euphues.*)

First hundred periods . . .	39.81
Second " " . . .	41.21
Third " " . . .	26.33
Fourth " " . . .	40.32
Fifth " " . . .	36.51
Average 500 periods	36.83

FABYAN.

(*Chronicle*, Ellis's ed., p. 362, par. 2.)

First hundred periods . . .	68.28
Second " " . . .	66.68
Third " " . . .	56.12
Fourth " " . . .	65.77
Fifth " " . . .	58.26
Average 500 periods	63.02

SPENSER.

(*View of State of Ireland.*)

First hundred periods . . .	49.78
Second " " . . .	50.24
Third " " . . .	53.67
Fourth " " . . .	47.56
Fifth " " . . .	47.88
Average 500 periods	49.82

JOSEPH HALL.

(*Specialties; Hard Measure; Postscript.*)

First hundred periods . . .	51.98
Second " " . . .	53.58
Third " " . . .	52.94
Remaining seventeen . . .	8.25
Average 317 periods	52.60

The average of these results was found to be 50.14 words. This was then to be taken tentatively as an expression for the length of the English sentence down to Elizabethan times.

In selecting a like group from among modern authors, I took an example of the most diffuse and of the most condensed or laconic style that I could find by simple inspection, with three writers of standard but diverse excellence between. De Quincey, Macaulay, Channing, Emerson, and Bartol were the five names. The results from each author, given in complete hundreds to show the range and variation of sentence lengths and structures, were these: —

DE QUINCEY.

(*Opium-Eater.*)

20	40	61	37	22	76	37	22	11	11
41	12	35	98	26	10	30	28	34	60
16	22	32	41	73	45	32	31	10	17
88	33	72	34	20	27	15	3	15	32
5...27	7	9	10	52	94	53	53	5	56
14	25	47	81	37	46	15	16	39	11
45	11	9	12	29	59	47	33	58	4
7	4	37	70	39	44	9	73	23	13
8	33	41	35	37	18	35	17	27	19
10...94	16	41	43	11	62	13	8	12	17
3	33	34	36	11	9	29	61	18	18
21	24	19	35	7	44	12	40	21	46
10	44	33	25	36	15	19	63	72	59
7	66	28	141	6	22	10	4	65	27
15...45	21	40	37	43	13	76	4	66	3
20	14	87	57	10	35	5	21	79	15
58	54	17	25	18	10	23	57	34	15
37	41	17	11	94	21	40	63	56	23
102	36	47	41	15	11	25	6	8	43
20...27	51	15	21	13	9	43	17	45	54
29	3	26	17	68	31	13	22	38	42
57	4	38	47	17	19	14	15	13	114
82	7	34	16	22	29	30	26	48	29
43	9	37	16	45	12	31	60	23	27
25...36	8	38	71	35	20	26	17	79	54
6	19	56	15	83	18	32	33	5	42
15	9	38	40	14	23	43	38	14	39
46	2	8	53	7	38	24	5	17	51
39	10	21	17	16	8	34	92	31	11
30...37	10	33	40	27	6	15	6	27	74
44	39	33	31	21	13	32	29	50	32
21	12	43	13	28	7	20	65	20	34
47	2	21	8	37	11	52	20	22	92
64	12	36	8	60	44	43	50	44	24
35...22	29	37	29	22	15	37	6	39	11
44	82	84	38	14	5	31	13	59	38
15	12	42	74	37	23	35	24	3	31
46	15	70	12	5	34	59	56	13	28
46	3	21	54	28	20	5	14	3	39
40...81	3	66	82	23	15	47	35	30	34
7	6	17	16	38	39	19	35	22	45
21	4	32	82	53	6	23	37	32	46
105	7	27	65	46	84	39	56	25	48
30	13	18	53	14	40	30	26	22	15
45...43	3	41	39	100	19	35	34	55	14
22	3	51	18	52	17	37	35	11	22
39	36	29	49	16	16	57	13	15	19
47	95	87	30	30	39	9	52	110	16
18	71	34	30	28	18	25	43	61	34
50... 7	11	47	24	15	43	50	30	85	60
	29.75		38.63		29.82		31.22		34.22

Average 500 periods, 32.73.

MACAULAY.

(*Essay on History.*)

53	29	13	26	33	32	17	34
14	31	26	23	30	24	15	15
9	33	15	39	8	15	7	7
27	19	15	9	14	28	21	11
5...24	11	28	11	10	30	13	35
40	10	8	15	10	57	36	33
6	36	13	15	24	31	11	20
8	10	26	13	29	49	14	30
9	8	32	18	55	54	46	28
10...24	19	18	7	57	96	19	14
25	3	34	9	17	10	22	31
4	20	15	24	8	97	14	6
4	30	34	13	12	15	31	6
10	31	14	14	29	40	26	13
15...15	32	28	14	11	17	14	14
16	24	30	16	31	39	22	9
28	15	27	32	20	19	14	14
8	42	59	12	9	6	15	62
18	25	18	12	47	38	32	100
20...31	33	11	9	26	37	10	27
25	31	49	17	20	12	11	14
11	30	12	11	8	17	21	33
28	18	10	17	20	62	23	53
7	88	13	22	10	32	47	37
25...28	15	10	18	41	26	40	9
20	62	13	45	18	7	4	11
29	13	77	16	51	7	11	24
6	83	21	14	23	13	39	14
29	90	14	19	24	10	32	20
30...22	28	11	29	25	22	24	18
30	33	20	16	24	49	44	27
23	27	20	5	15	53	23	32
16	23	47	24	22	17	9	7
13	18	27	35	19	10	29	25
35...16	26	20	22	22	45	19	9
49	14	7	11	13	17	23	19
24	18	42	41	31	30	11	12
30	17	11	7	13	22	14	14
19	12	16	50	28	12	16	7
40...32	21	19	12	22	11	11	18
16	12	35	7	9	35	35	16
65	13	39	31	9	30	18	11
8	11	24	8	25	48	59	18
17	15	17	21	19	33	37	14
45...41	35	8	40	11	18	25	34
14	4	35	22	19	16	23	19
13	10	31	21	20	21	29	30
11	8	28	8	43	10	21	17
4	48	19	12	15	35	7	25
50... 8	12	14	27	20	22	10	10
	23.23		21.26		25.95		22.20

MACAULAY — *Continued.*

9	40	6	16	26	13	15
9	32	6	17	50	4	33
51	43	8	26	36	6	27
33	8	6	24	11	16	33
5...58	45	19	19	8	22	6
81	12	65	16	15	24	20
7	13	21	13	25	12	5
5	17	24	10	17	66	115
20	19	8	21	13	14	15
10... 5	18	20	23	29	27	13
7	23	11	50	18	17	13
15	10	23	70	18	17	14
18	7	7	17	24	13	26
13	17	5	35	36	12	39
15...17	15	42	50	22	6	19
13	22	3	19	15	11	42
18	24	16	14	25	18	16
20	7	7	15	23	56	16
15	3	25	24	25	19	9
20...20	3	16	28	33	18	24
46	34	15	51	16	19	16
10	14	58	65	9	14	44
11	10	40	13	16	41	
15	23	73	52	7	10	560
25...32	30	22	5	20	7	
35	22	17	67	32	42	
23	10	17	54	44	14	
26	22	17	37	98	29	
5	12	19	7	36	30	
30 ..17	14	9	14	11	15	
4	15	19	13	7	28	
9	17	33	26	16	23	
14	17	17	23	41	29	
15	17	16	23	14	19	
35...20	18	11	9	10	14	
12	12	28	40	11	30	
16	24	68	7	18	42	
19	13	29	19	23	17	
10	26	6	18	6	27	
40. .13	8	9	29	14	38	
44	40	18	13	15	50	
21	19	30	47	29	29	
21	8	9	26	32	14	
11	35	11	21	45	23	
45...18	21	11	16	65	58	
39	18	13	15	25	9	
27	12	28	29	13	21	
12	16	14	33	60	54	
10	33	29	9	19	58	
50...25	13	7	29	16	39	
	19.65		23.47		24.78	

Average 722 sentences, 23.00.

CHANNING.

(*Self-Culture.*)

28	29	26	46	38	21	21	71
23	62	36	18	26	7	34	16
37	28	29	14	6	12	6	19
15	41	32	13	31	9	15	35
5...23	22	22	18	34	23	51	26
25	11	10	27	34	11	18	8
14	31	22	18	44	83	13	22
15	21	69	22	26	22	13	9
10	18	51	18	24	26	17	21
10...10	28	18	43	8	29	36	69
29	39	41	59	68	24	29	24
32	4	30	27	88	46	9	23
17	18	10	10	32	17	52	7
28	35	20	31	24	41	24	10
15...28	46	48	4	10	13	32	13
8	31	19	16	23	21	39	23
11	32	38	57	20	14	20	8
14	10	8	15	24	32	12	22
11	4	19	41	18	22	42	18
20...33	5	20	37	13	21	21	36
21	6	44	23	33	22	15	99
16	14	30	23	52	15	32	21
78	18	8	17	11	25	47	8
19	55	39	51	21	17	13	22
25...21	58	12	25	13	59	33	29
19	22	12	14	15	30	17	38
18	37	4	19	15	30	39	33
5	14	35	1	19	15	37	20
15	16	1	60	25	18	10	28
30...57	49	4	35	75	15	34	11
4	15	24	26	11	38	35	47
62	14	9	65	38	24	14	22
22	17	22	9	15	23	99	41
10	45	27	14	16	29	17	52
35...20	9	8	1	20	21	18	7
8	12	20	52	29	20	74	47
13	15	20	43	15	16	16	27
31	9	7	17	29	31	22	26
67	28	14	28	26	10	10	17
40...42	27	18	14	20	45	55	43
30	24	12	37	24	15	24	18
72	10	18	6	40	53	21	19
70	23	16	9	13	15	5	18
31	8	10	14	17	27	21	15
45...16	14	14	22	8	17	5	8
45	21	34	26	28	30	22	27
34	16	34	26	20	28	6	30
17	5	23	69	27	16	15	46
26	15	43	17	12	46	83	12
50...53	32	39	85	12	4		26
	25.16		25.51		25.38		26.80

CHANNING — *Continued.*

78	17	26	12	9	14	8
22	29	61	28	70	43	47
21	20	10	29	9	18	22
29	16	14	53	28	20	9
5...16	25	15	66	58	47	59
9	14	33	4	24	19	20
25	33	10	18	35	11	8
13	20	8	109	22	47	9
68	35	14	11	26	16	7
10...22	10	19	29	7	16	12
4	7	20	10	8	12	7
10	18	24	7	41	23	53
8	12	14	48	27	14	32
11	36	33	68	30	31	10
15...19	7	22	33	36	4	40
18	10	13	26	26	4	29
58	7	14	55	31	97	21
9	59	37	58	7	16	52
27	10	27	31	4	12	25
20...36	31	28	18	30	10	47
75	28	5	16	14	58	46
22	23	34	25	18	39	22
1	27	26	7	19	25	15
14	21	9	15	6	17	13
25...31	34	11	27	11	13	16
33	23	18	22	59	5	43
8	8	28	24	28	23	9
19	20	44	47	19	47	8
10	36	16	47	78	27	12
30...14	20	14	40	5	37	6
18	29	32	31	29	14	16
21	41	51	22	17	37	10
11	14	18	20	22	9	40
22	12	16	16	21	14	11
35...47	44	33	13	15	20	25
18	36	31	18	12	7	13
7	12	6	13	6	26	20
12	42	20	54	19	9	15
57	12	33	26	18	15	10
40...12	12	28	10	44	29	11
10	34	17	14	13	29	8
19	38	34	10	27	22	18
22	69	12	18	36	52	6
15	7	10	15	21	42	25
45...12	14	10	20	28	42	29
13	23	40	20	20	60	35
21	187	27	25	32	24	9
33	57	28	23	38	46	1
5	58	6	18	14	49	4
50...22	53	52	6	16	29	18
	25.77		25.48		25.73	1031

Average 750 periods, 25.35.

EMERSON.

(*The American Scholar, and Divinity School Address.*)

10	30	12	16	31	36	12	13
12	18	22	10	5	28	23	15
46	24	11	7	4	68	17	13
29	42	22	8	4	19	35	46
5...12	36	6	18	6	8	23	21
47	5	20	13	14	8	10	48
17	8	10	18	10	19	23	23
20	8	4	10	12	16	34	7
11	55	6	12	5	5	11	29
10...39	17	21	13	5	69	8	7
26	7	28	15	9	12	12	63
15	9	34	7	9	7	23	26
17	9	39	34	37	59	38	11
49	10	11	19	14	10	26	14
15...39	20	8	30	12	19	10	12
15	19	11	27	9	15	11	6
11	30	13	8	44	8	16	5
30	32	9	10	21	21	9	14
22	6	7	15	18	27	5	12
20...33	27	21	14	38	7	48	62
36	11	45	20	17	31	5	4
10	13	6	7	8	17	8	46
26	10	14	15	7	59	4	43
21	9	14	8	8	7	14	66
25...27	7	14	15	20	10	50	12
21	9	42	8	10	23	65	20
11	22	44	7	27	14	19	18
8	18	59	21	45	25	29	22
25	18	19	18	28	17	36	24
30...15	5	34	21	14	16	16	———
19	56	18	11	10	19	32	1813
17	18	14	13	77	10	26	
11	10	8	8	8	14	5	
15	6	22	15	13	6	28	
35...13	18	10	16	18	22	40	
18	16	21	33	5	25	15	
19	27	17	51	5	32	8	
11	10	34	19	27	33	139	
8	36	34	79	28	22	20	
40... 9	5	14	38	25	40	10	
12	33	10	14	21	16	17	
8	40	11	4	7	37	5	
5	9	43	48	9	9	17	
26	33	12	21	38	26	5	
45...18	12	19	20	23	19	6	
35	12	18	7	28	21	7	
2	5	30	15	43	15	12	
11	11	20	20	6	16	23	
55	7	44	82	15	8	28	
50...19	28	13	12	23	32	28	
	19.57		19.88		20.22		

EMERSON — *Continued.*

15	4	8	61	11	14	33
19	13	19	9	15	18	58
21	27	9	13	39	14	34
11	15	15	8	37	64	18
5...11	30	11	14	21	33	13
13	20	40	10	26	77	6
19	6	23	15	30	55	7
9	13	31	15	38	18	18
32	11	31	29	25	15	21
10...15	64	28	4	39	24	21
16	3	11	18	15	46	36
55	16	15	12	17	24	72
19	8	17	14	20	32	13
35	5	18	19	18	12	51
15...20	12	35	26	20	31	50
20	34	9	39	7	17	21
11	14	10	22	35	14	13
10	15	18	47	5	15	29
15	39	10	21	24	24	11
20...21	25	11	25	14	16	30
9	9	19	42	16	57	51
27	5	11	33	14	20	19
15	7	7	21	50	14	39
2	9	17	22	10	6	40
25...17	17	20	54	24	11	111
23	14	16	20	52	3	16
40	50	24	18	10	3	17
16	6	11	32	16	18	18
19	6	30	13	30	13	14
30...30	4	14	6	25	17	14
7	7	30	47	26	14	43
13	51	16	11	16	8	43
22	31	12	7	18	9	23
28	18	33	10	51	7	17
35...38	15	6	5	36	5	8
18	15	17	28	10	15	18
4	7	12	15	14	3	10
13	16	18	25	18	4	7
16	18	15	22	7	5	19
40... 9	12	14	3	13	5	13
12	15	30	9	19	6	35
9	35	13	13	5	41	16
33	10	5	8	10	21	15
17	12	23	14	16	14	14
45...12	32	24	20	47	17	13
8	36	31	32	38	6	48
8	7	48	5	9	18	23
21	15	26	12	3	12	22
18	28	41	30	31	22	51
50...20	14	7	58	13	41	37
						16
	18.06		20.15		21.01	17
						70
		Average 732 periods, 20.71.				1472

BARTOL.

(*Radicalism and Father Taylor.*)

13	10	20	10	23	4	32	49	6
20	13	16	8	36	7	13	45	8
17	7	59	4	27	6	8	46	18
14	3	9	7	36	12	17	112	14
5...15	30	30	13	22	12	32	9	10
15	10	9	23	6	18	13	17	6
11	5	18	30	6	6	34	10	16
3	18	5	9	35	6	8	16	11
7	7	20	25	7	5	3	17	9
10...16	12	18	19	26	9	32	22	6
13	13	6	12	7	10	14	17	20
12	12	6	34	16	19	20	33	12
21	9	10	25	27	4	11	43	5
19	11	27	16	21	6	37	17	14
15...19	52	40	7	17	16	31	22	30
5	11	21	17	5	6	7	5	16
12	13	21	14	5	7	15	14	6
17	22	5	13	4	10	23	24	15
9	18	34	4	7	16	33	5	11
20...56	33	13	29	20	11	8	6	14
13	15	12	28	16	13	5	5	22
6	29	17	17	13	12	18	13	10
18	11	47	5	8	20	15	31	4
8	8	13	4	7	7	48	22	23
25...16	7	12	4	3	15	37	24	26
12	6	7	19	3	22	35	16	6
13	11	16	10	7	14	30	5	22
5	33	16	63	10	14	48	5	7
25	6	15	9	7	9	27	32	5
30... 7	12	13	14	15	23	22	4	6
12	28	16	23	35	24	29	25	12
20	14	20	33	14	19	13	9	13
9	23	18	9	24	22	18	5	43
6	7	33	4	25	10	12	61	10
35...14	18	21	17	11	8	33	12	49
16	25	16	36	10	30	30	4	23
34	13	8	17	24	18	16	4	11
31	17	28	31	10	22	9	20	43
13	23	27	12	31	7	9	14	15
40...41	10	5	34	14	15	17	8	15
5	8	9	12	10	9	62	13	4
21	23	5	28	22	5	46	10	20
7	26	9	8	21	13	27	7	5
12	4	48	13	26	19	6	12	5
45... 6	16	20	7	5	23		13	11
15	15	10	17	21	5	10 03	58	24
11	28	12	8	7	12		15	17
17	41	8	17	9	25		10	19
24	25	25	5	6	13		13	14
50...18	31	16	17	6	17		24	15
	16.11		17.49		14.28			17.59

BARTOL — *Continued.*

7	6	9	20	4	37	8	19
9	9	23	6	5	6	15	74
22	16	11	6	26	20	9	7
13	7	25	6	20	7	13	7
5...22	27	31	13	27	70	9	8
7	25	10	13	26	17	27	7
7	11	13	23	13	14	8	13
9	9	16	19	7	20	22	7
27	23	38	10	10	53	33	5
10...14	16	15	11	7	11	16	11
13	25	8	9	19	5	48	9
7	16	19	38	13	6	21	1127
6	20	13	6	15	11	38	
8	21	10	7	7	11	5	
15... 9	6	28	51	35	9	6	
15	14	12	15	24	6	15	
11	12	19	17	7	13	12	
7	20	17	21	10	10	19	
3	9	28	20	15	8	22	
20... 3	5	19	23	36	11	27	
4	15	18	16	5	10	17	
5	18	17	11	30	11	24	
5	34	12	28	11	7	18	
10	19	13	19	6	9	30	
25...49	17	12	10	12	10	33	
34	18	9	4	24	8	5	
14	17	8	8	23	27	18	
12	19	10	3	18	12	14	
9	39	8	19	18	13	13	
30... 9	18	29	6	20	7	13	
9	26	12	4	13	11	56	
11	6	9	9	18	7	6	
19	14	10	26	18	8	10	
7	14	13	34	6	11	8	
35...11	12	9	28	5	12	16	
10	33	11	27	5	14	38	
65	20	12	25	10	18	26	
6	16	13	38	10	14	26	
10	9	11	33	10	19	13	
40... 6	18	12	10	28	48	19	
37	7	24	7	25	18	11	
9	10	12	9	10	11	25	
27	13	14	16	44	6	10	
5	38	29	15	39	16	53	
45... 6	20	6	20	5	25	16	
13	10	22	4	19	11	7	
16	13	10	9	15	23	10	
14	10	4	10	18	12	13	
25	8	7	7	12	17	34	
50...28	26	10	10	15	43	5	
	15.38		15.49		16.21		

Average 805 periods, 16.63.

Adding now the several footings, I found 23.53 as the average of the selections, or very nearly half that obtained for the authors of the first group. The comparison thus turned out essentially as expected, furnishing evidence that the English prose sentence had dropped something like half its weight since Shakespeare's times.

But this array of figures was clearly of further interest. Now that the number of words in consecutive sentences was definitely exhibited, strange facts and features of style were indicated or suggested. The length of one sentence, it was shown, might be echoed unconsciously into the next, as notably in Macaulay's groups of seventeens. Noteworthy was Macaulay's failing for odd, and De Quincey's for prime, numbers, as also Macaulay's partiality to seven and nine for final digits. But the really remarkable thing was the apparently constant sentence average in the respective authors. Could it be possible that stylists as eminent and practised as these are subject to a rigid rhythmic law, from which even by the widest range and variety of sentence lengths and forms they may not escape? At once pushing the suspicion to a proof, I made, first, an extended test in Macaulay's *Essays:* result, 23 +, the number obtained before; then in Channing: average again, 25. The variation in each hundred periods from these respectively was so slight, it seemed best to make special trial of the *Opium-Eater*, in which greater fluctuations had above been marked. The averages of the remaining sentences of the work, taken by hundreds as before, were these: —

Sixth hundred	29.09	Fifteenth hundred	35.32
Seventh "	30.39	Sixteenth "	40.29
Eighth "	32.94	Seventeenth "	39.29
Ninth "	33.92	Eighteenth "	38.12
Tenth "	32.88	Nineteenth "	31.24
Eleventh "	34.09	Twentieth "	31.42
Twelfth "	34.42	Twenty-first "	33.57
Thirteenth "	29.57	Twenty-second "	32.09
Fourteenth "	38.58	Remaining twenty-five	31.16

Complete average 2225 periods, 33.65.

Several other tests were next made in various writers, with essentially like findings. Even an author as far back as Hooker yielded from the first book of the *Polity*, 725 periods, 44.08, 40.84, 37.03, 41.63, 42.40, 45.14, 47.83, for the consecutive hundreds. Bacon was found to be 28 consistently in the *Essays*. Milton at first seemed refractory, but was forced to own to no less an average than 60. Dryden reached 45, Addison stopped at 37. Shaftesbury, Bolingbroke, *Junius*, Carlyle, Newman, Beecher, Lowell, and Higginson fell into line regularly with the rest. No evidence appearing to the contrary, it seemed likely enough that sentence rhythm was a universal law. At any rate, it was not necessary to delay longer upon what was relatively an unimportant point. There was plenty to do ahead. The right way and the only way to learn the facts and principles of English prose development was plainly to study the literature objectively, with scalpel and microscope in hand. Yet, with the aid of certain of my students and others, I gave further a little time to the question whether the sentence average was constant in a given author for different works and periods of production. In Macaulay no variation was found between the *Milton* or the *Machiavelli* and the *Pitt Essay*; none between the first and the fifth volume of the *History*. De Quincey was seen to have been writing in 1852 and 1857 ("*California*" and "*China*" respectively) the same length of sentence as had been determined from the *Opium-Eater* (pub. 1821). Channing likewise had not altered between 1812 and 1842, and even Carlyle showed no change for worse or better, in respect to sentence proportions, between the Edinburgh *Essays* and his *Frederick the Great*.

On now taking up the main task with some seriousness, I soon found the principal lines along which the English sentence had approached its modern simplicity and strength. But the process of following out the various phases of the development appeared so complex and tedious that I was dismayed. It was too much to attempt without coöperation. Having the responsibility as editor of filling the gap between

two principal articles in the second number of our UNIVERSITY STUDIES, I put together certain chief facts and findings from the analysis in the paper "Some Observations upon the Sentence-length in English Prose," hoping to attract other hands to the work. But, though I outlined with some clearness the course of investigation to be followed, no one of those communicating with me concerning it seemed drawn to the task, or, as I thought, to realize the promise it held out of solving some or many of the mysteries of literature. Clearly, by study of individual styles the course of evolution in modern prose English might be traced. Moreover, if it were true that each author writes always in a consistent numerical sentence average, it would follow that he must be constant in other peculiarities, as proportion of verbs, substitutes for verbs, conjunctions, etc., if a sufficiently large number of sentences were taken as the basis. Meanwhile, in a series of communications to *Science* (beginning with the issue for March 22, 1889) upon a kindred topic, it had been seriously questioned whether there could be any such thing as consistency in such cases, — except perhaps on the basis of many thousand sentences. The first thing therefore to be done was to demonstrate undeniably the fact of a constant numerical average. For this I chose Macaulay's *History of England.* The style of this was noticeably less stereotyped and regular than of the *Essays*, there was much curt dialogue, there were long descriptions. If the findings for the *Essays* were confirmed in the *History* as a whole, the case would be closed, at least for Macaulay. I had devised a plan of accurately registering the results in counting, and had reached such facility with the method that I no longer dreaded the drudgery of such a task. In about three weeks of the summer of 1889 I finished the five volumes. The following were the results obtained. Each entry is the average of one hundred periods in consecutive order throughout.

	30.69	22.17	20.93	19.86	21.11	21.52	19.30	24.43	25.49
	24.62	21.60	20.65	16.92	22.13	23.93	18.42	20.52	25.62
	25.39	27.69	22.60	19.46	19.33	24.02	20.74	25.09	27.22
	24.18	27.30	22.91	21.21	24.00	21.44	18.46	28.50	24.93
5	24.43	24.41	23.06	20.52	21.00	20.11	24.36	25.47	23.36
	26.11	17.29	24.89	19.27	27.48	23.58	22.05	23.83	29.93
	26.13	17.88	23.08	19.84	21.02	26.46	19.69	22.00	20.82
	24.50	20.42	24.57	17.87	19.78	18.16	19.38	19.23	25.85
	25.84	21.01	22.97	18.27	22.82	18.96	20.24	20.28	23.66
10	29.01	21.78	24.37	23.03	23.52	19.98	22.76	23.26	26.63
	23.90	20.53	24.76	21.04	24.88	23.02	23.13	23.83	26.46
	23.59	23.52	25.16	21.34	27.13	28.07	21.19	23.26	23.85
	24.80	21.44	29.65	20.47	22.87	21.92	24.17	21.83	22.85
	25.94	18.55	23.98	21.56	19.20	23.07	29.61	23.10	24.42
15	21.27	23.17	26.00	21.12	26.78	20.59	27.71	22.81	21.26
	25.18	21.28	26.63	21.26	28.60	24.26	26.66	20.30	
	24.93	23.24	24.32	16.89	26.95	22.96	27.31	23.75	
	24.13	22.36	20.47	19.88	23.90	24.77	22.73	20.49	
	21.57	24.44	26.77	23.69	24.70	22.28	24.10	24.13	
20	26.79	25.15	25.59	23.85	25.68	22.97	23.53	24.63	
	23.22	24.51	23.66	20.88	21.55	21.66	27.41	20.27	
	24.19	22.39	22.22	24.14	25.36	24.30	25.46	23.17	
	24.60	17.04	22.58	30.34	21.14	19.19	23.18	23.25	
	22.88	21.75	23.75	22.58	17.93	24.45	21.78	22.10	
25	26.38	21.15	22.85	25.91	23.29	22.40	21.34	24.85	
	24.96	21.00	21.04	21.53	19.66	25.95	26.74	26.02	
	25.32	21.50	17.47	27.92	28.04	20.03	25.70	23.87	
	22.75	20.69	17.22	28.06	19.46	20.31	28.22	24.27	
	23.15	19.10	24.88	24.98	24.44	21.70	24.25	27.90	
30	25.24	19.41	21.99	29.54	22.52	23.99	25.67	23.41	
	21.85	18.27	23.86	23.83	22.78	21.28	24.81	25.77	
	20.92	19.01	24.68	25.99	21.20	18.29	22.60	23.80	
	24.45	17.36	20.83	25.54	21.05	17.49	23.46	25.93	
	21.93	22.59	23.15	22.86	26.06	18.99	22.43	28.02	
35	22.80	21.42	16.32	24.27	28.45	20.73	25.93	24.38	
	21.74	18.85	20.63	27.51	28.50	24.96	20.99	24.68	
	24.65	20.48	22.42	25.77	27.27	25.91	20.88	21.87	
	24.04	23.07	24.86	22.86	24.07	29.21	24.79	24.04	
	26.86	18.88	21.01	30.21	25.28	24.54	22.26	26.05	
40	25.93	30.91	18.18	29.76	23.51	30.30	21.13	24.72	
	26.27	21.12	27.05	27.45	23.24	25.49	20.90	23.61	
	25.88	23.87	25.76	24.16	23.48	23.39	25.68	25.26	
	28.16	22.33	26.11	23.74	25.67	26.52	24.72	25.18	
	21.61	20.79	24.46	26.08	24.00	22.86	21.78	29.45	
45	25.18	27.19	24.00	21.64	18.07	24.77	25.60	25.23	
	25.16	24.67	22.44	22.12	24.06	24.95	26.41	26.62	
	23.06	28.04	23.27	22.61	24.67	24.71	25.30	25.41	
	24.09	22.65	19.76	22.54	27.15	20.46	21.33	26.64	
	24.64	24.19	26.30	23.97	25.25	21.15	20.23	24.15	
50	25.90	23.31	21.89	23.87	24.96	26.04	25.22	21.27	

The entries in the following columns are the averages of the consecutive thousands. The footings are the averages by five thousands.

26.09	22.13	23.00	19.62	22.21	21.81	20.54	23.26
24.21	22.36	25.33	21.11	25.06	23.39	25.01	22.81
24.20	20.85	21.76	25.58	22.33	22.39	24.97	23.91
23.51	21.08	21.59	25.86	24.81	23.17	22.92	24.92
24.99	23.81	24.10	23.81	24.05	24.03	23.71	25.28
24.61	22.05	23.16	23.20	23.69	22.96	23.42	24.03

The entries here are the averages of the consecutive thousands as before. The footings are the averages by ten thousands: —

26.09	23.00	22.21	20.54
24.21	25.33	25.06	25.01
24.20	21.76	22.33	24.97
23.51	21.59	24.81	22.92
24.99	24.10	24.05	23.71
22.13	19.62	21.81	23.26
22.36	21.11	23.39	22.81
20.85	25.58	22.39	23.91
21.08	25.06	23.17	24.92
23.81	23.81	24.03	25.28
23.33	23.18	23.32	23.73

Number of words in the remaining 1579 sentences, 38,696. Average for the entire *History*, 23.43.

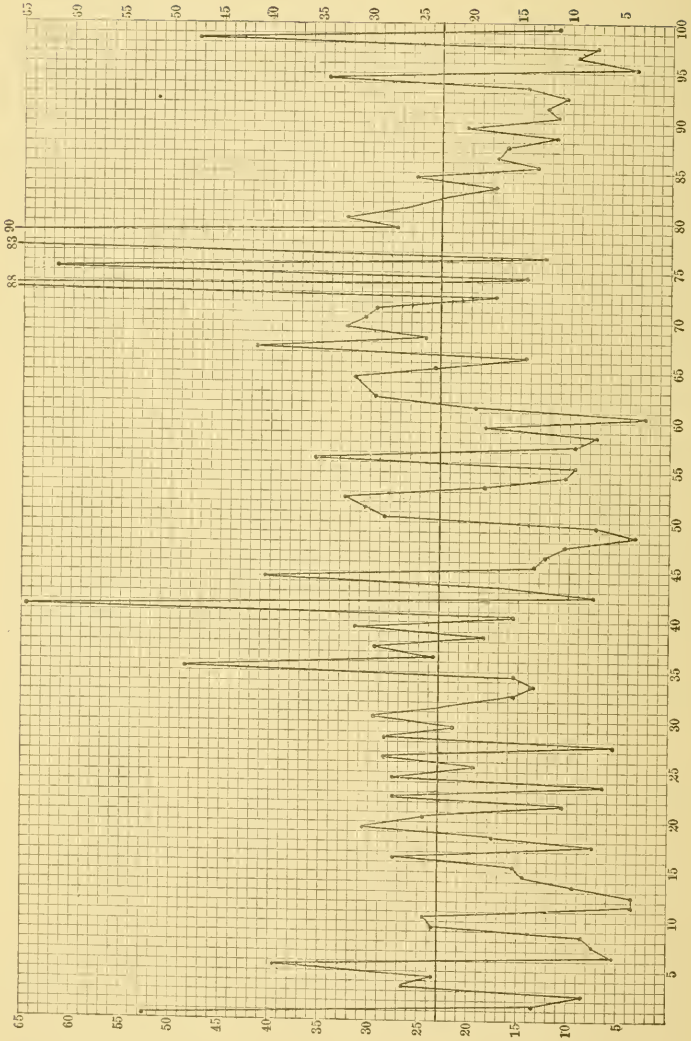
The data now in hand confirmed certain apparent differences between the style of the *Essays* and of the *History*. The latter is written with less "curious care"; the long sentences are much longer; curt phrases are far more numerous. Yet, in spite of the greater centrifugal force, the style keeps to its orbit. What centripetal principle could be potent enough to counteract all erratic tendencies so perfectly? When long sentences had prevailed for a page or two, short were sure to follow in similar succession, as the figures showed. After the dialogue passages and consequent reduced averages, seemingly by a sort of reaction, full-rounded

periods and high averages take their place.[1] Instead of a lesser final aggregate for the *History* on account of the abundant dialogue, this was larger than for the *Essays* by a respectable fraction. The evidence seemed to indicate the operation of some kind of sentence-sense, some conception or ideal of form which, if it could have its will, would reduce all sentences to procrustean regularity. A single act may or may not signify with respect to character, but the sum of a man's deeds for a day or a week will exhibit his ideals and principles and other springs of action. Here, then, in this 23.43 was the resultant of the forces which had made Macaulay's literary character. How the many short sentences are kept at equilibrium by the few long periods is illustrated on next page by a diagram of the sentence-lengths from the first two columns on page 4. The horizontal numberings indicate the sentences in order from one to one hundred; the vertical show the number of words in the respective periods.

[1] In the *History* was observed the same fondness for seven as a final digit as had appeared in the figures from the *Essay* above. There was relatively a great number of sentences — and in one case no less than four consecutively — containing just seven words. Thinking this might be connected in some way with the fact that Macaulay's sentence average was an odd number, I went through forty thousand of the sentences, to ascertain whether even or odd numbers predominated. But I found that the sentences containing each an odd number of words were not more numerous than those of even, as the following summary will show: —

In first 5000 sentences	2455 even,	2545 odd.
" second " "	2536 "	2464 "
" third " "	2462 "	2538 "
" fourth " "	2482 "	2518 "
" fifth " "	2491 "	2509 "
" sixth " "	2504 "	2496 "
" seventh " "	2537 "	2463 "
" eighth " "	2534 "	2466 "
In 40,000 sentences	20,001 even,	19,999 odd.

But why should the even and the odd sentences alternate in preponderance? This surely could not be fortuitous merely. Other mysteries there were in plenty and seemingly more solvable. The lists abounded in strange runs and ranges of figures, in which it seemed some law should be at once discerned by the mathematically or psychologically expert. For my own part, after a few ineffectual attempts to decipher something, I gave up the task.



In the general investigation pursued before the publication of the article alluded to above, it was noted, first, that Macaulay, Channing, Emerson, and Bartol wrote a great number of simple sentences, while the earlier authors very few. Chaucer's *Melibeus* showed but four per cent of these; Hooker's first book of the *Ecclesiastical Polity*, thirteen; but Macaulay's *Essay on History*, not less than forty. It was evident that Macaulay and his fellows were under some constraint to write simple sentences only. But it was further noticed that when any one of these writers found it necessary to use a long or complex period, it was likely to turn out very long and complex indeed; so that in this they agreed with and even rivalled the authors of the first era. Here then were in operation two active principles, one analytic, one synthetic. So far as appeared after an extended examination, Channing and Macaulay were the first to write in accordance with the former. The prosaists who since Chaucer had employed the latter appeared to show a progressive improvement, both in decrease of predication and in articulation, — or, as Spencer would say, in bringing the heterogeneous out of the homogeneous. For the prose periods of Chaucer and Spenser abounded in coördinate rather than subordinate constructions of every kind. A comparison of the prose with the poetry of each proved their poetic sentences much more organic and articulate, and much less synthetical. There were far less predications in the latter, the periods did not seem half so long. In short, their poetry seemed as simple and clear as anybody's, but their prose was practically unreadable. The prose might really be of the same kind as the poetry, but was at least centuries behind it in sentential development.

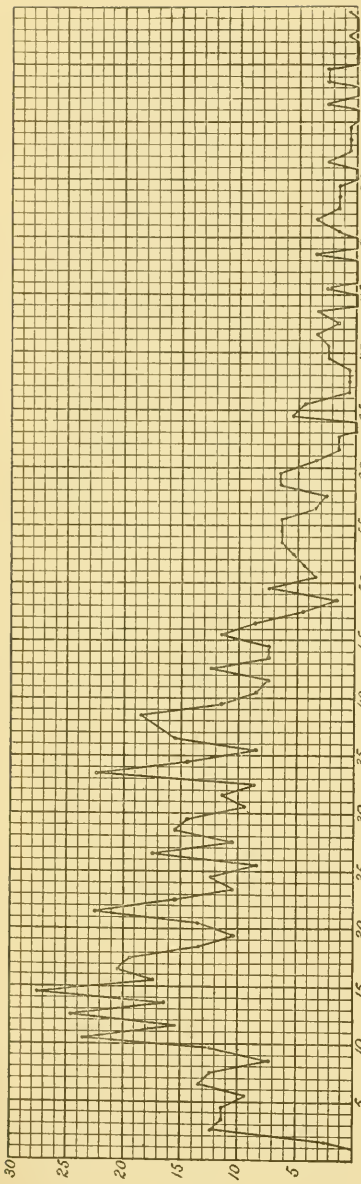
The analytical principle as observed in Channing and Macaulay appeared to mean, Put in a simple sentence no more than can be brought before the mind pictorially or symbolically in a single view. If this meaning be yet but potential, not yet translated into successive propositions, let it be realized to the mind and expressed by instalments in some logical order, each fact or judgment, since an integral part

of the whole, in a sentence by itself. But the synthetic principle amounts to an impulse to develop the whole meaning in some way within the limits of a single sentence. Thus Chaucer, at the opening of the Prologue, wishing to express the idea that it was the return of spring that sent palmers and pilgrims forth upon their journeyings, brings all the facts leading up or accessory to the final proposition into one period of eighteen lines. Spenser, too, in the *Faerie Queene*, first tells collectively all he has in mind to say of Una and the Red Cross Knight without halt or division, except at close of stanzas. He uses no short sentence until he gets (stanza vi.) to the Dwarf. There is no other period in the first ten stanzas of the poem so short as the one now met with. The suspicion that the reason for its brevity is in the matter rather than the instinct of manner, is confirmed on comparison with the sentences preceding. If the Dwarf had possessed, in Spenser's conception, either traditions or character — save laziness, there would in all likelihood have been no stop until the end of the ninth line. On the other hand Chaucer, beginning a few periods beyond his synthetic introduction to the *Prologue*, writes a large per cent of as clear-cut analytic sentences as it would be easy to find in any modern prosaist.

The question next to be settled was evidently the relation of the analytic sentence to the synthetic. Could it be possible that the one was derived from the other, or were both equally the products of some common principle? Did the prevalence of analytic sentences in modern prose mean simply the introduction of oral form into polite literature? The decrease in the numerical length of prose sentences was clearly only an incident in some sustained course of development. Just what that development had been could now be known if some one were willing to investigate diligently along one or two lines already indicated. Fortunately the work had not long to wait. In the summer of 1889 Mr. G. W. Gerwig, graduate of this institution that year, proposed special study in literature for the degree of M.A. As a subject for the thesis to be pre-

pared I suggested an examination into the decrease of predication and sentence-weight since Chaucer. The investigation, faithfully and even enthusiastically carried through, embraced the principal authors in the prose side of our literature, as also many of the poets, and a number of prominent names outside of English. The averages from the several authors were consistent, and taken as a whole unequivocally established the fact of a systematic decrease of sentential complexity and weight, towards the oral norm. The thesis, with some subsequent extension, will be published as the second paper in the present series on the development of literary form, but the following extracts will show the general character of the results obtained. The exhibit includes per cent of predications, per cent of simple sentences, and per cent of predications avoided through use of present participles, past participles, and appositives. The authors are arranged according to per cent of predications.

	Periods	Per cent. pred.	Per cent. sim. sent's	Per cent. clauses saved	Pres. Partc.	Past Partc.	Appositives
Spenser (*View of S. of I.*)	1069	5.44	8	6.74	23.5	15.5	.3
Chaucer (*Melibeus*) . . .	480	5.25	4	1.02	3.2	1.9	.4
Dryden (*Dramatic Poesy*)	521	4.89	6	4.88	17.4	7.6	1.1
Milton (*Areopagitica*) . .	500	4.87	6	9.31	31.6	17.2	.4
Hooker (*Eccles. Polity*) .	500	4.12	12	8.73	28.6	10.8	0.
Sidney (*Defence of Poesy*)	473	3.98	10	9.27	22.6	15.2	.6
Bolingbroke (*S. of History*)	500	3.72	13	3.46	2.8	9.6	1.2
De Quincey (*Opium Eater*)	500	3.69	14	5.48	9.1	11.4	.2
Ruskin (*Sesame and Lilies*)	718	3.50	18	6.63	13.3	10.1	1.
Bacon (*Essays*)	500	3.12	19	2.87	6.6	2.6	0.
Newman (*Apologia*) . .	500	2.96	16	4.34	7.4	6.4	.2
Channing (*Self-Culture*) .	500	2.56	31	5.82	6.8	7.4	1.4
Lowell (*Lessing*) . . .	500	2.52	23	5.78	7.4	5.8	3.
Everett (*Poetry, Comedy, and Duty*)	500	2.39	32	3.55	4.8	3.2	.8
Grant (*Memoirs*) . . .	500	2.34	31	8.93	12.5	9.	1.8
Emerson (*History, Friendship*)	500	2.26	37	3.81	3.	5.6	.6
Macaulay (*Essay on Hist.*)	722	2.18	40	4.90	3.	7.	12.
Bartol (*Radical Problems*)	462	1.97	45	8.8	14.7	3.	.9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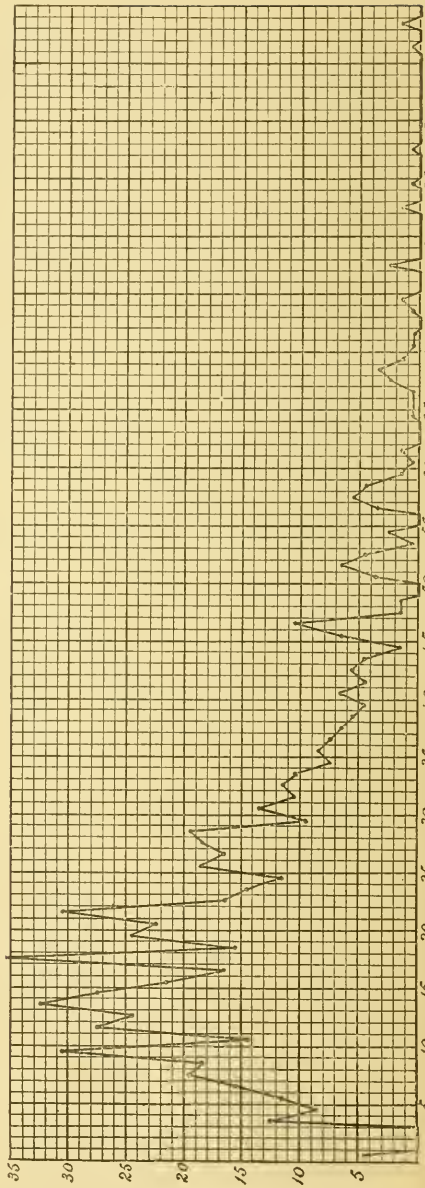
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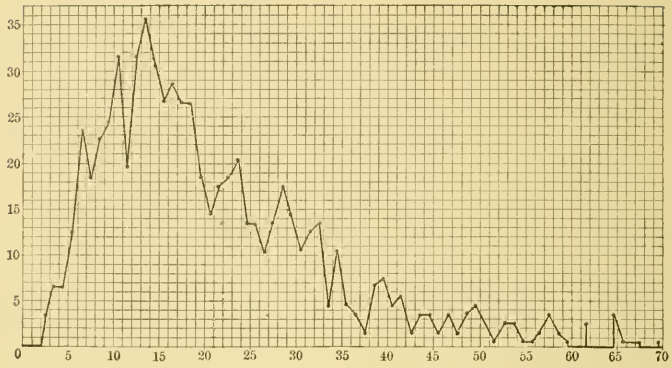
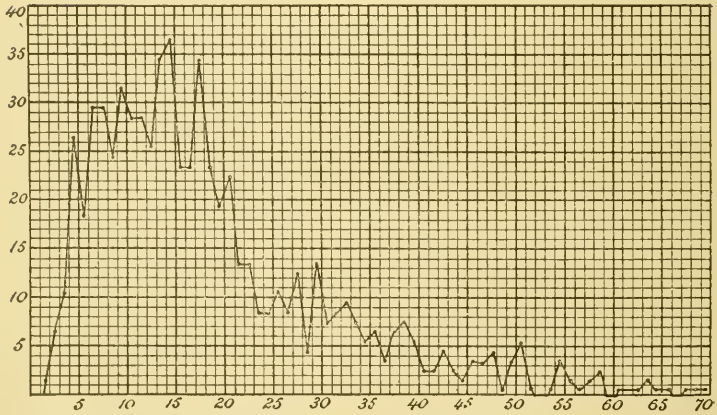
Here was evidence in plenty of a systematic decrease in sentence length and weight: That the principle at work was something more than economy of effort in sentence-making seemed clear. The goal of the development was the every-day oral sentence structure. On reaching that the decrease in predication and sentence weight would doubtless cease. Here then was apparently the explanation of the mystery found in Macaulay's style as exhibited on p. 18. The short analytic sentences were of the conversational kind; the long counterbalancing periods were of the book sort, that had made our earlier prosaists so hard to read. The real interpretation of the results thus far might be summarized in the observation that the oral sentence-sense was fast prevailing over the literary sentence form. Proof of this was best exhibited by gathering together periods of the same length in the authors examined. The change from De Quincey to Channing, for instance, is exhibited in the diagrams, on the page opposite, of their respective summaries from pp. 3 and 6, 7.

The figures at the side of these and following diagrams indicate the number of times sentences of a given length occur; those at the bottom of the plates the number of words in sentences. The exhibit from Channing covers the 750 periods of *Self-culture*, except two, one of 187 words and one of 109, the former of which could not be shown upon a practicable scale. The curve of De Quincey includes, in addition to the 500 periods exhibited on page 3, the next 200, for fair comparison with authors following. From the latter diagram eight periods — of 102, 105, 141, 110, 114, 125, 176, 114 words respectively — have been perforce excluded.

In marked contrast with the preceding we may compare the following curves respectively from Macaulay and Emerson. These show their sentence length of maximum frequency as determined from the periods given on pp. 4, 5 and 8, 9. Of sentences containing more than seventy words, ten are here omitted from Macaulay, and seven from Emerson.



MACAULAY: *Essay on History.*



EMERSON: *American Scholar; Divinity School Address.*

It will at once be noted how much heavier is the bulk of Emerson's sentences in lengths from 3 to 10 than Macaulay's. But compare (pp. 10, 11) Bartol's.

BARTOL: *Radicalism; Father Taylor.*

What, then, was the meaning of the decrease in predications and sentence lengths now shown? They seemed to indicate pretty clearly the trend of rhetorical progress in modern days. It is of the essence of the times to covet high culture, but not to exploit it. Men are becoming more and more specialistic, but less and less professional. Some of the most polished of present stylists studiously eschew seeming better than conversational writers. The style of the future is likely to be yet more informal and easy than the best examples of this sort now extant. It will not probably abound in numerical averages as low as Bartol's or Emerson's, and will be less disjointed and staccato. An informal organic sentence need not be long, but must not be weighed down with predications. Effective individual styles not hard to find in the periodical literature of these days will average perhaps as high as twenty words of numerical length, yet show not above 1.60 predications per sentence, nor less than 65 per cent of simple sentences.

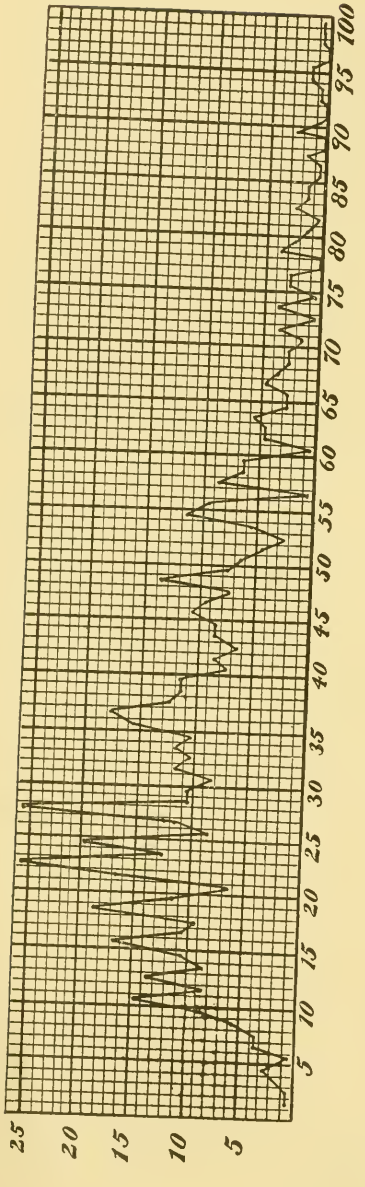
Hence the exhibits from Emerson and Bartol indicate rather revolutionary or transitional than final forms. As has been already pointed out, the development is most assuredly not headed towards laconism and sentences averaging each three words or less, but towards the most organic and perfect oral norm. That reached, men will write, — at least in sentence structure, — essentially as they speak, and the gap between written and spoken English, except in vocabulary, will be closed up. The practice of dictating to stenographers and the increasing personal use of type-writers by professional authors are unmistakably aiding and hastening this consummation.[1]

The principal difference between the oral and the literary sentence is the greater heaviness of the latter. Much of the matter in books, which inexpert readers find either unintelligible or 'dry,' is wholly within the range of their experience or knowledge, and could be made edifying to them if told by word of mouth, or rewritten in oral sentences. We must be careful to distinguish here between *heaviness* and *weight*. A man who usually talks in very easy sentences may, in course of a knotty argument, stiffen his periods very appreciably. His sentences for the time being may be weighty, but unless containing more predications than necessary will not be heavy. Heaviness can be properly applied only to what is burdensome, and, in styles, only to what requires conscious effort in the reading. Weighty meaning need not therefore be heavy; and very frequently heavy compositions do not contain meaning of much weight. Popularly speaking, we of course use 'weight' for 'heaviness' without much risk of ambiguity, and in best styles have little occasion to employ it in any other sense. There are fortunately in this generation few writers of the first class who do not succeed, like the best French stylists, in so casting strong meaning in light clauses as to keep the reader unaware

[1] A somewhat fuller, though elementary, discussion of the differences between oral and written English, along lines here suggested, has been attempted by the author in Chapter XXIV. of his *Analytics of Literature;* Boston, 1892.

of their real weight. Also there are unfortunately too many writers of the second or third class who may warrantably remind us of the sixteenth century prosaists. But perhaps the best examples of heavy writing are to be found among the early compositions of high-school and college students. It would be hard to say whence they derive the synthetic sentence sense evinced in first attempts at literary English. What makes short-period styles is the oral sentence-sense given free play as in ordinary informal talk. The prime difficulty encountered by teachers of composition is in making students give up their stiff, elephantine sentences and write simply, in plain mother tongue phrases and terms. The whole of our rhetorical education — after we have learned to speak correctly — is often nothing but the process of taming and subduing our literary sentence-sense to practicable oral standards.

Heaviness, then, is a relative term. The styles of those who, like Newman, address the educated exclusively, will not be heavy to their proper public, though unintelligible to common readers. Hooker is to-day hard reading for the audience which Newman addresses, but was apparently not heavy to his own narrower circle. The relative heaviness of Hooker and Newman is seen by comparison from the table, p. 21, of their respective per cents of predications and of clauses saved. Hooker has perhaps a slight advantage over Newman in preponderance of oral sentences, as would appear from the diagrams (p. 28), of the sentence lengths respectively from the First Book of the *Polity*, and a corresponding portion (first 700 periods) from the *Idea of a University*. As we descend to popular literature, the sentence of maximum frequency grows shorter and shorter, reaches approximately in Macaulay the oral length, and later passes considerably below. For it is evident that literary purveyors of the *Fireside Companion* order would hardly succeed in working off such enormous editions if the style they write in were not less 'heavy' than ordinary talk. The readers of such literature are either boys not yet equal to the sentence weight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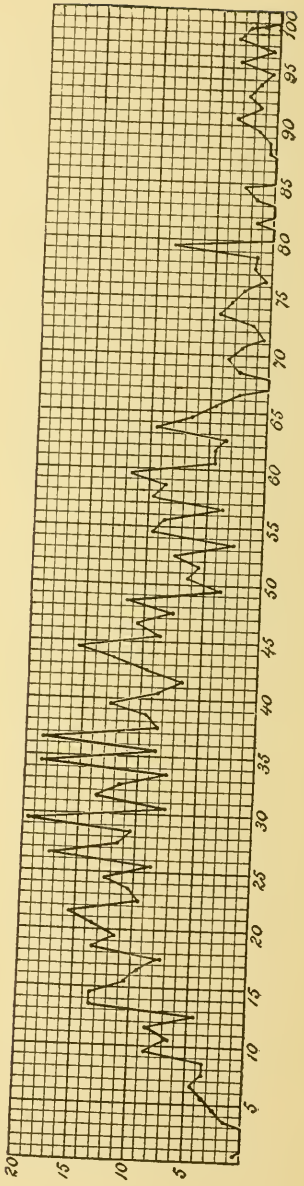
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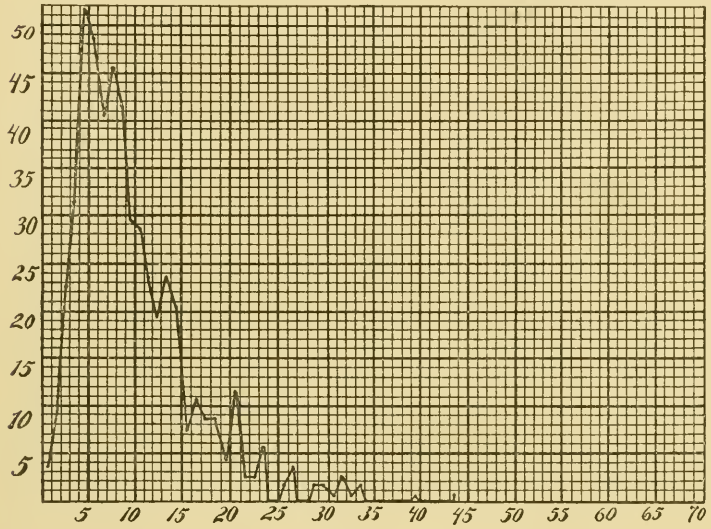
of the 'Oliver Optic' novels, or unprivileged older intellects that never will feel quite at home with ordinary newspaper English. Hence we shall not be surprised to find *five* as the sentence length of maximum occurrence, through 500 periods, in a story in *Saturday Night*, — as this diagram will show.



The analysis, therefore, which was begun so idly and inconsequentially, had little by little suggested conclusions of some moment. It had indicated the course of sentential simplification, as also the inorganic conditions which had made simplification necessary. The influence of classical learning had the effect of fastening a heavy unoral diction upon the English literary world. From that the race has been slowly but effectually liberating itself; so that we are to-day almost emancipated from mediævalism in literature as in all things else. We have nearly unlearned how to write in ponderous bookish wise, and nearly learned how to be as natural with the pen as with the voice. Moreover, while we have been lowering our sentence proportions to something like normal spoken forms, there are writers who are

carrying the movement to an extreme. What the oral sentence average with best speakers is it would be unsafe to say until considerable investigation has been made upon that point, — probably not much above or under twelve words.

After the objective plan had been tried with the above effect, it was applied further upon prose elements and usages with results that can be only enumerated here. It was quickly apparent that our literary prose had passed variously through a coördinating, a subordinating, and a suppressive stage, — just as each child learns to speak, and later to write, its mother English. The first articulate sentences of children are strung together by *ands*. At the age of eight or earlier, they begin to subordinate unimportant predications by the use of *because*, or *if*, or *when*, and like connectives. Finally, at twelve or over, they will have learned to dispense with a good share of their predicatives, by leaving conjunctions without verb, or by participial or absolute constructions. The fact last named cleared up also the remnant of the mystery concerning decrease in sentence weight. The same method of search for elements, and of development through them, was applied to the poetic side of our literature with not less success. It was quickly demonstrated that the peculiar richness of Keats' and Shelley's poetry is due to the abounding use of phrases, — these the product of a long development, — and that Shakespeare's as well as Tennyson's and Browning's power lies chiefly in their use of allegoric thoughts condensed to single terms. The other Teutonic literatures were found to exhibit also a like course of development and like results. A provisional and pedagogic treatment of the principles just designated has been given in Chapters VIII.–X., and XX.–XXIII. of the work already mentioned; but complete investigation is in progress by competent hands.

III. — *On the* Δικανικὸς Λόγος *in Euripides.*

By JAMES T. LEES.

The study of Greek eloquence and oratory has attracted many of the best minds of the ancient and of the modern world. Aristotle, in his Ars Rhetorica, was the first to enter the field, but he tries to cover too much ground, for he ranges over nearly the whole of Greek literature from Homer down. Dionysios of Halikarnassos, of the first century B.C., in his work entitled *περὶ τῶν ἀρχαίων ῥητόρων ὑπομνηματισμοί*, wrote a series of criticisms on the best Greek orators. Unfortunately, half of this work is lost; but the sections which have been preserved are worthy of careful study, especially his remarks on Lysias. Many writers since Dionysios, both in the days of the Greek grammarians and in modern times, have touched upon various phases of the subject. But from the time of the accomplished professor of rhetoric, Dio Chrysostomos, of the first and second centuries of the Christian era, down to the middle of the present century, no careful and scientific treatment of the subject was presented to the world. The treatment of the subject in Müller and Donaldson, 'History of the Literature of Ancient Greece, 1858,' is little more than a mere sketch. Westermann's 'Geschichte der Griechischen Beredsamkeit' is practically a bibliotheca of references. It was reserved for Dr. F. Blass, in (1) 'Die Attische Beredsamkeit von Gorgias bis zu Lysias,' Leipzig, 1868, and (2) 'Isokrates und Isaios,' 1874, as well as for Professor R. C. Jebb, in 'The Attic Orators from Antiphon to Isaeos,' 2 vols., London, 1876, to make a careful and systematic study of this very important division of Greek prose literature.

There is still an important and interesting field of investigation which remains practically untouched. We lack a thorough and scientific treatment of the influence of Greek oratory on the Greek drama, and *vice versa*. We find a few pages here and there in some of the histories of Greek literature which treat of this influence in a more or less cursory manner, but we have not as yet a comprehensive work on this subject which can be placed beside the works of Blass and Jebb on Attic oratory. It is hoped that the present article may furnish a contribution, however slight, to our knowledge upon that subject, and may be of some assistance in leading the way to a full investigation of the whole field of Greek tragedy and oratory in their influence upon each other.

This paper is a rhetorical study of the long speeches in Euripides. The investigation was suggested by a passage in Aristophanes, Eirene, 533, 534:

> *οὐ γὰρ ἥδεται*
> *αὕτη ποιητῇ ῥημάτιων δικανικῶν.*

The *ποιητής* referred to is Euripides.

We may compare this statement with the words of the same critic in Batrachoi, 771 fg.:

> *ὅτε δὴ κατῆλθ' Εὐριπίδης, ἐπεδείκνυτο*
> *τοῖς λωποδύταις καὶ τοῖσι βαλλαντιοτόμοις*
> *καὶ τοῖσι πατραλοίαισι καὶ τοιχωρύχοις,*
> *ὅπερ ἔστ' ἐν Ἅιδου πλῆθος, οἱ δ' ἀκροώμενοι*
> *τῶν ἀντιλογιῶν καὶ λυγισμῶν καὶ στροφῶν*
> *ὑπερεμάνησαν, κἀνόμισαν σοφώτατον.*

We may also compare Aristotle, De Arte Poetica, 6. 1450b.

ἀρχὴ μὲν οὖν καὶ οἷον ψυχὴ ὁ μῦθος τῆς τραγῳδίας, δεύτερον δὲ τὰ ἤθη. ἔστιν γὰρ μίμησις πράξεως καὶ διὰ ταύτην μάλιστα τῶν πραττόντων. τρίτον δὲ ἡ διάνοια. τοῦτο δέ ἐστιν τὸ λέγειν δύνασθαι τὰ ἐνόντα καὶ τὰ ἁρμόττοντα, ὅπερ [ἐπὶ τῶν λόγων] τῆς πολιτικῆς καὶ ῥητορικῆς ἔργον ἐστίν· οἱ μὲν γὰρ ἀρχαῖοι πολιτικῶς ἐποίουν λέγοντας, οἱ δὲ νῦν ῥητορικῶς.

Quintilian, too, has something to say on this subject, Instit. Orator., X, 1, 68:

Namque *is* [i.e. *Euripides*] et *sermone* (*quod ipsum reprehendunt*, quibus gravitas et cothurnus et sonus Sophoclis videtur esse sublimior) *magis accedit oratorio generi* et sententiis densus et in iis, quae a sapientibus tradita sunt, paene ipsis par, et *dicendo ac respondendo cuilibet eorum, qui fuerunt in foro diserti, comparandus.*

The attacks of the conservative Aristophanes on the liberal Euripides are too well known to require comment. Every work on Greek literature, and almost every edition of the plays of Euripides, informs us of this fact. We are at a loss when we try to imagine an Aristophanes without a Euripides for him to attack. The comedian lampooned the tragedian at every opportunity, and if circumstances were not favorable for an attack, he made them favorable. Aristophanes sighed for the good old times, but if he had succeeded in bringing back the past he would have been dissatisfied with it. He was the champion of a past Athens, and it exasperated him to be met at every turn by this poet — this recluse who loved his books — who was the champion of the present, or, rather, of the future, Athens.

The charge made by Aristophanes in the passages quoted above doubtless contains much truth; but whether it is to be regarded as a grave fault of Euripides or as an argument in his favor, since he tried to please his audience, scholars are by no means agreed. After the severe onslaught of Schlegel there was a united attack against Euripides, and scholars vied with each other in trampling him down; but now we know that the harsh criticism of Schlegel was unreasonable, and that the poet is in a fair way to receive justice.

In preparing this investigation, the long speeches in the plays of Euripides have been carefully studied for the purpose of selecting those which might be called forensic discussions, either in the form of a trial, where the plaintiff, defendant, and judge appear on the stage, or in a less formal court scene, as well as the persuasive and epideictic speeches.

The subject thus includes the *γένος δικανικόν, γένος συμβουλευτικόν,* and *γένος ἐπιδεικτικόν.*[1]

In literature the speech is as old as Homer. From the first speech in the Iliad until the end of the classical period the *ῥῆσις* plays an important rôle in all the branches of Greek literature, with the single exception of the Lyric. Public speaking was indigenous; the Greeks were born speakers. The popular assembly and the eloquent orator were to them what the quiet room and the newspaper of to-day are to us. Theirs was a listening, ours is a reading public. It is but natural, therefore, that the speech, which was so important a factor in the life and development of the nation, should be of frequent occurrence in the Epos and the Drama, as well as in History and Philosophy.

In Aischylos the long *ῥήσεις* are generally delivered by a messenger who relates some action which has taken place at a distance, or by a stranger who gives a description of a far-off country and people. The tendency to argument is very slight, and generally no sooner is a discussion begun than it is ended. In the Hept. Theb., 1026 fg., after a *ῥῆσις* of sixteen lines by Antigone, the discussion is quickly brought to a close by a short *στιχομυθία* (1042 fg.). In the Eumenides, 443 fg., the trial of Orestes naturally leads to discussion; but the arguments are advanced by Orestes and by the chorus, hence would not produce the same effect on the audience as two long *ῥήσεις* delivered by individuals on the stage. The parties argue in *στιχομυθία,* vv. 588–606, and only Apollo, the advocate for Orestes, speaks at any length (Eum. 614–621, 625–639). The poet, therefore, shows a strong tendency to avoid long *ῥήσεις* in such discussions.

But when we come to Sophokles we find the rhetorical element in a more marked degree. This change is doubtless due to the fact that rhetoric and discussion had begun to occupy a more prominent place in Athenian life, and the

[1] Quintilian (II, 21, 23. III, 4, 1; 7, 1) informs us that Aristotle was the first to make this triple division of rhetoric. See also Dion. Hal., De Lysia Iudicium, 16.

advance in the economy of the drama by which Sophokles introduced three actors belongs to the same line of development. In at least four of the seven extant plays of Sophokles the rhetorical element is clearly discernible. The best example is in the Antigone, 639–680, 683–723, where the character of Haimon is manifestly that of an Athenian pleader. A discussion, which may be compared with many in the plays of Euripides, is found in Soph., Elek., 516–551, 558–609. In this passage the ῥῆσις of Klytaimnestra has a distinctly rhetorical structure, and contains a προοίμιον, 516–522, as well as an ἐπίλογος, 549–551. The ῥῆσις of Elektra in reply is much longer, but the divisions are not so clearly defined. We also see a strong tendency to argument and discussion in Soph., Aiax, 1226–1263, 1266–1315, Oid. Tyr., 380–403, 408–428. We may also add Philok., 1004–1044, 1047–1062.

Clearly discernible in Sophokles, the rhetorical element becomes still more conspicuous in the dramas of Euripides. Tragedy and oratory, each a form of public speaking, began to be strongly attracted to each other. Oratory lent its schemes to tragedy, and the drama in turn affected oratory, as we see from many dramatic passages in the orators from Lysias in the earlier time to Aischines in the later. And as in Aischines we think that we can trace the effects of his early training as an actor, so in Euripides we can trace the fondness for argument and altercation to his early familiarity with sophistic methods, — to the influence of such men as Prodikos. At any rate, natural bent, sophistic training, tendency of the times, singly or combined, will suffice to explain the rhetorical speeches in nearly all the plays of Euripides. This peculiar feature of the plays of Euripides is more widely distributed than the "Agon of the Old Comedy."[1] In the comedies of Aristophanes there are three plays without an Agon;[2] while in the dramas of Euripides there is but one without a rhetorical scene.[3] This is the Iph. Taur., and even

[1] See Zielinski, "Die Gliederung der Altattischen Komödie," Leipzig, 1885. Also M. W. Humphreys, "The Agon of the Old Comedy," A. J. P. VIII, 179–206.

[2] Acharnes, Eirene, Thesmophoriazousai. [3] The Rhesos is not included.

in this drama, although it contains no long rhetorical *ῥήσεις*, some of the short speeches approach very near to forensic discussion. Cf. especially vv. 597–608, 674–686, 687–715.[1]

In the treatment of the rhetorical speeches a brief synopsis of the play has been given as far as the scene in which the discussion occurs; this scene is then treated more fully with a synopsis of the speeches of the plaintiff and defendant. The speeches have been divided, so far as it was found practicable, into the four divisions *προοίμιον*, *πρόθεσις*, *πίστεις*, *ἐπίλογος*, which every complete rhetorical speech contains.[2]

The discussion is often referred to by the word *ἀγών*,[3] just as it is used to denote a trial or action at law in the orators.

In Herakl. 116, before the formal *ῥήσεις* are delivered, the word is used:

> *πρὸς τοῦτον ἀγὼν ἆρα τοῦδε τοῦ λόγου*
> *μάλιστ' ἂν εἴη.*

In Orest. 491, it occurs in the first line of the first *ῥῆσις*:

> *πρὸς τόνδ' ἀγὼν ἂν τί σοφίας εἴη πέρι;*

Also after ten lines of the first *ῥῆσις* have been delivered in Andr. 328:

> *δούλῃ κατέστης εἰς ἀγῶνα.*

In Her. Main. 1311, it occurs in the lines of the chorus after the first *ῥῆσις*:

> *οὐκ ἔστιν ἄλλου δαιμόνων ἀγὼν ὅδε*
> *ἢ τῆς Διὸς δάμαρτος.*

It occurs at the beginning of the second *ῥῆσις* in Hiket. 427:

> *ἐπεὶ δ' ἀγῶνα καὶ σὺ τόνδ' ἠγωνίσω*
> *ἄκου'· ἄμιλλαν γὰρ σὺ προύθηκας λόγων.*

[1] The latter may perhaps be divided into *προοίμιον* 687, 688, *πίστεις* 689–707, *ἐπίλογος* 708–715.

[2] See Aristotle, Ars. Rhet. III, 13 fg.; Dion. Hal., Ars. Rhet. c. X fg.; De Lys. Iudic. 17, 18, 19; Volkmann, Die Rhetorik der Griechen und Römer, ch. 36; Rössler, Rhetorum Antiquorum de Dispositione Doctrina, p. 30 fg.

[3] This word is used in Aristophanes to refer to the formal contest in comedy. See A. J. P. VIII, 183 (note).

In Andr. 234, it is used even after both ῥήσεις, in the spirited debate which follows :

τί σεμνομυθεῖς κεἰς ἀγῶν' ἔρχει λόγων.

The προοίμιον can be clearly discerned in nearly all the longer rhetorical ῥήσεις. Sometimes, however, it is hardly worthy of the name when the first few lines of the leading ῥῆσις are an answer to the previous words of the opponent. In a few passages it is omitted altogether, as, for example, Hek. 251, 1132 ; Her. Main. 170, 1313. The προοίμιον may be general or particular. There is no regular form or phrase used to introduce it, but in two ῥήσεις we find the word itself used. Elek. 1060 :

λέγοιμ' ἄν· ἀρχὴ δ' ἥδε μοι προοιμίου.[1]

Hekabe 1195 :

καί μοι τὸ μὲν σὸν ὧδε φροιμίοις ἔχει.

The πρόθεσις is generally found in the first ῥῆσις of a pair or series of speeches, but is omitted in Hek. 251, Elek. 1017, Ion 589, Orest. 495, Troad. 918. Sometimes it is scattered through the πίστεις, as in Alkest. 633 fg., Andr. 154 fg. In many ῥήσεις it is somewhat argumentative, and extends into the πίστεις even where the division has been made. In such cases it is impossible to determine exactly the dividing line. On the other hand, it is regularly omitted in the second ῥῆσις, for either the first speaker has already stated the case, or the audience is acquainted with the facts from the preceding part of the drama. In this Euripides follows the custom of the orators, for with them the second speech on the same case has no πρόθεσις.

The πίστεις form the most important part of the discussion, and therefore regularly extend through the greater part of the ῥῆσις. This part is omitted but once,[2] Phoin. 493.

[1] Nauck brands the word προοιμίου as "absurdum."

[2] The speech in Hiket. 857–917 is a funeral oration, and hence contains no πίστεις.

The division between the *πρόθεσις* and *πίστεις* is often clearly defined by such words as *φέρε*, *ἄγε*, etc. As, for example, Andr. 333 :

Μενέλαε, φέρε δὴ διαπεράνωμεν λόγους.

Also Andr. 662 :

καίτοι φέρ', ἄψασθαι γὰρ οὐκ αἰσχρὸν λόγου.

Medeia 499 :

ἄγ', ὡς φίλῳ γὰρ ὄντι σοι κοινώσομαι.

The *πίστεις* are sometimes introduced by *πρῶτον* or *πρῶτα*. Hipp. 991 :

πρῶτα δ' ἄρξομαι λέγειν.

Hiket. 517 :

καὶ πρῶτα μέν σε πρὸς τὰ πρῶτ' ἀμείψομαι.

Troad. 919 :

πρῶτον μὲν ἀρχὰς ἔτεκεν κ.τ.λ.

Occasionally the clew to the division is given by some other word, as in Iph. Aul. 381, *εἰπέ μοι*. Ion 589, *ἄκουσον*. Or in a more general way, as in Hek. 1196 :

πρὸς τόνδε δ' εἶμι καὶ λόγοις ἀμείψομαι.

Sometimes the speaker balances the arguments of his opponent with his own. Herak. 153 :

φέρ' ἀντίθες γάρ.

Orest. 551 :

δύο γὰρ ἀντίθες λόγω.

Phoin. 559 :

ἄγ', ἤν σ' ἔρωμαι δύο λόγω προθεῖσ' ἅμα.

The end of the *πίστεις* can frequently be detected by some phrase, as, for example, Bak. 309 :

ἀλλ' ἐμοί . . . πιθοῦ.

The same words occur in Kyklops 309, Herak. 174.

The ἐπίλογος is rarely wanting.[1] Sometimes it is a brief statement that the speaker has said all that is of importance in defence of his case. It may be a *résumé* of the arguments or a statement of the speaker's position, as in Andr. 361 fg., 688 fg., Hipp. 971 fg., Iph. Aul. 400 fg., Troad. 961 fg. It may be a supplication for mercy, as in Herak. 226 fg.; or an address to a god, as in Med. 516 fg. Again it is almost proverbial, as Hek. 293 fg., Hiket. 506 fg. In Elek. 1049–50, the first speaker bids her opponent answer the arguments, and this is a conclusion to the ῥῆσις.

The average length of the ῥήσεις is a little less than fifty lines, but some of them exceed that number, as Andr. 590–641, Hek. 1132–1182, 1187–1237, Her. Main. 170–235, Hiket. 195–249, Iph. Aul. 1146–1208, Med. 465–519, 522–575, Orest. 544–604, Troad. 914–965, 969–1032, Phoin. 528–585. In some discussions the two ῥήσεις exactly balance each other in the number of lines, as Hek. 1132–1182, 1187–1237, Elek. 1011–1050, 1060–1099, Herak. 134–178, 181–231,[2] Med. 465–519, 522–575. In Phoin. 469–585, we find the remarkable coincidence of twenty-seven lines by each of the disputants and fifty-six by Iocaste in reply, being almost exactly twice the number of each of the preceding ῥήσεις. This universal tendency to balance, which in Greek became a law, must not, however, be pushed too far in these speeches, much less be considered as ground for textual criticism. To do so would be to reduce poetical genius to simply mathematical ingenuity. It is much better to consider them as does Johann Kvíčala (Eur. Stud. II, 81), who says (in his discussion of Hek. 1132–1182, 1187–1237): "Eine Uebereinstimmung der Verszahl dieser beiden Reden könnte, wenn die Ziffer 51 richtig ist, nicht für beabsichtigt gelten."

The two ῥήσεις are generally separated from each other by two verses of the chorus, but this rule is violated in a few cases, as Andr. 641–645, Hek. 295–299, Hel. 943–947, Troad. 965–969, where we have three verses. In Her. Main. 169,

[1] See Andr. 180, Hek. 331, Helen 943, 995.

[2] Vv. 220–225 are doubtless interpolated.

the verses of the chorus do not occur. Two passages remain where the rule is apparently violated, — Elek. 1050–1060, which is discussed later, and Hek. 1182–1187.[1]

In the translation of the ῥήσεις the attempt has been made to choose typical speeches to illustrate our author, and to state briefly the leading lines of thought rather than to follow the text verbatim. The text of Nauck, 3 ed., Leipzig, 1885–1887, has been taken as the basis ; but other editions have been freely consulted, and where other readings seemed preferable they have been adopted. Constant use has been made of Wilamowitz-Moellendorff's "Analecta Euripidea," and Nauck's "Euripideische Studien."

I. — Δικανικοὶ λόγοι.

A. — DISCUSSIONS BETWEEN TWO SPEAKERS IN THE PRESENCE OF A JUDGE.

1. Hekabe, 1114–1292. Ῥήσεις, 1132–1182, 1187–1237.
Disputants, Polymestor and Hekabe.
Judge, Agamemnon.

2. Herakleidai, 120–287. Ῥήσεις, 134–178, 181–231.
Disputants, Kopreus and Iolaos.
Judge, Demophon.

3. Orestes, 470–716. Ῥήσεις, 491–541, 544–604, 640–679, (682–716).
Disputants, Tyndareos and Orestes.
Judge, Menelaos.

4. Troades, 895–1059. Ῥήσεις, 914–965, 969–1032.
Disputants, Helen and Hekabe.
Judge, Menelaos.

[1] Hek. 1185, 1186, are rightly rejected by W. Dindorf. They are suspected by Kvíčala, Eur. Stud. II, p. 83.

ANALYSIS OF HERAKLEIDAI 120–287, AND TROADES 895–1059.

HERAKLEIDAI, 120–287. Ῥήσεις, 134–178, 181–231.

A sharp discussion occurs near the beginning of this play. Iolaos and the children of Herakles have been banished from Argos, and Eurystheus has sent a herald forbidding any city to receive them. The fugitives have just arrived at Marathon, and are found clinging to the altar in front of the temple of Zeus. At v. 55, Kopreus, the herald of Eurystheus, arrives, and is about to drag the suppliants from the altar when he is checked by the arrival of the chorus (v. 73). To the latter Iolaos tells his story and begs for protection (vv. 75–98). After a few words between Kopreus and the chorus, the latter bids him state the case to the king. Kopreus then asks (v. 114):

ΚΟ. *τίς δ' ἐστὶ χώρας τῆσδε καὶ πόλεως ἄναξ;*

ΧΟ. *ἐσθλοῦ πατρὸς παῖς Δημοφῶν ὁ Θησέως.*

Kopreus then declares the case shall be discussed before Demophon (vv. 116, 117). The arrival of Demophon, who is to be the judge, is immediately announced (v. 118 fg.), and the king having learned the cause of the trouble, asks for an explanation from Kopreus. This introduces the *ῥήσεις* of the plaintiff and defendant.

Ῥῆσις OF KOPREUS, 134–178.

1. Προοίμιον, 134, 135:

Ἀργεῖός εἰμι, τοῦτο γὰρ θέλεις μαθεῖν·
ἐφ' οἷσι δ' ἥκω καὶ παρ' οὗ λέγειν θέλω.

2. Πρόθεσις, 136–138:

πέμπει Μυκηνῶν δεῦρό μ' Εὐρυσθεὺς ἄναξ
ἄξοντα τούσδε· πολλὰ δ' ἦλθον, ὦ ξένε,
δίκαι' ὁμαρτῇ δρᾶν τε καὶ λέγειν ἔχων.

3. Πίστεις, 139–174 :

α. 139–143. As a citizen of Argos I arrest Argive fugitives condemned by law to die, and we have a right to pass judgment upon our own subjects.[1]

β. 144–146. To many other altars have they gone, but we have rested our case on these arguments, and no one has ventured to encounter danger by opposing us.

γ. 147–152. They have come here because they see some weakness of heart in you, or else because this is their last hope.

δ. 153–174. Come, weigh the arguments.[2] If you allow us to take them back, you can ally the great power of Argos to this city; but if you are weakened by their arguments,[3] and admit them into your city, then the case is to be settled by the sword, and you have no good reason for making war.

4. Ἐπίλογος, 174–178 :

But yield to my arguments,[4] and, without cost — simply allowing me to take what belongs to me — gain Mykenai. Do not choose the worse when you can have the better friends.

At the close of Kopreus's speech, the chorus, reflecting the sentiment of an Athenian audience, asks (vv. 179, 180) :

> *τίς ἂν δίκην κρίνειεν ἢ γνοίη λόγον,*
> *πρὶν ἂν παρ' ἀμφοῖν μῦθον ἐκμάθῃ σαφῶς ;*

The words of the chorus are the signal for the defence.

[1] V. 143. Nauck reads ἀστοὶ κατ' ἀστῶν for αὐτοὶ καθ' αὑτῶν, but the change is not necessary.

[2] V. 153. φέρ' ἀντίθες γάρ. Cf. Orest. 551, δύο γὰρ ἀντίθες λόγω.

[3] V. 158. Nauck follows F. G. Schmidt in reading γόους for λόγους of the MSS. Retain λόγους.

[4] V. 174. ἀλλ' ἐμοὶ πιθοῦ. Cf. Bak. 309 ; Kyklops 309.

Ῥῆσις OF IOLAOS, 181–231.

1. Προοίμιον, 181–183 :

ἄναξ, ὑπάρχει μὲν τόδ' ἐν τῇ σῇ χθονί,
εἰπεῖν ἀκοῦσαί τ' ἐν μέρει πάρεστί μοι,
κοὐδείς μ' ἀπώσει πρόσθεν ὥσπερ ἄλλοθεν.

2. Πρόθεσις omitted.

3. Πίστεις, 184–219 :

α. 184–189 (*ἐσμεν*). We have nothing in common with this man, for he is Argive, but we are not, since we have been banished.

β. 189–196. Does banishment from Argos mean from all Greece? Not from Athens, at any rate. The Athenians will not drive away the children of Herakles through fear of the Argives.

γ. 197–204. If your arguments succeed, I declare that Athens is no longer free. But I know their nature, — they would rather die; for honor with the brave is considered of greater importance than life.[1]

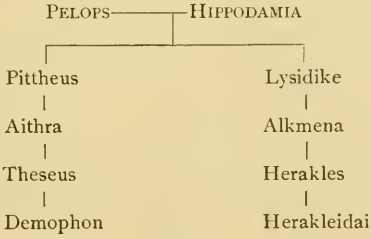
δ. 205–213. You ought to save these children because your father and theirs were born of first cousins,[2] hence you are related.

ε. 214–219. Besides relationship they have another claim upon you. Their father once rescued your father from the murky depths of Hades, as all Greece can testify.

[1] Cf. Plato, Krito 49 C, D ; Apol. 28 B–D.

[2] V. 211. Nauck reads *ἐξανεψίω* for MSS. *αὐτανεψίω*. The correction of Reisig *αὐτανεψίων* (= *ἐξ αὐτανεψίων*) is much better.

The relation of Demophon to the children of Herakles is as follows:



4. Ἐπίλογος, 226–231.[1]

I beg of you do not refuse to receive the children of Herakles under your protection. Be to them a friend, father, brother, even master; for anything is better than to fall into the power of the Argives.

Πίστεις of Kopreus.		Πίστεις of Iolaos.
α. 139–143	answered	*α.* 184–189.
β. 144–146	"	*β.* 189–196.
δ. 153–174	"	*γ.* 197–204.

γ. 147–152 is too weak an argument to require an answer.

δ. 205–213, *ε.* 214–219, are independent arguments of Iolaos, which prove to be the strongest.

The decision of the judge is given in a few words (vv. 236, 237):

τρισσαί μ' ἀναγκάζουσι συμφορᾶς ὁδοί,
Ἰόλαε, τοὺς σοὺς μὴ παρώσασθαι ξένους·[2]

Demophon decides in favor of the suppliants for three reasons:

1. Vv. 238, 239. On the ground of religious obligation.
2. Vv. 240, 241. On the ground of relationship and gratitude.
3. Vv. 242–246. The honor of Athens demands it.

At v. 250, he turns to Kopreus and bids him return and tell Eurystheus the courts are open for him to settle his claims by law, but he cannot use force. Then follows a rapid cut and thrust between Demophon and Kopreus in a *στιχομυθία* of twenty verses (252–272). This form of dialogue generally closes such long discussions. At the close of the *στιχομυθία* the two disputants come so near to blows that the chorus interferes and bids Kopreus depart (v. 273 fg.).

[1] Vv. 220–225 are doubtless spurious. Vv. 221, 222 have evidently been taken from vv. 97, 98 of this play. Dindorf suspected vv. 223–225, and remarked that the words *βλέψον πρὸς αὐτοὺς βλέψον* (225) are taken from Alkest. 390.

[2] V. 237. Nauck, 3d ed., reads λόγους for *ξένους*.

The herald declares that Argos will make war on Athens (vv. 275–283), and Demophon angrily replies (vv. 284–287):

> φθείρου· τὸ σὸν γὰρ Ἄργος οὐ δέδοικ' ἐγώ.
> ἐνθένδε δ' οὐκ ἔμελλες αἰσχύνας ἐμὲ
> ἄξειν βίᾳ τούσδ'· οὐ γὰρ Ἀργείων πόλει
> ὑπήκοον τήνδ' ἀλλ' ἐλευθέραν ἔχω.

This is one of the best court scenes in Euripides. The ῥῆσις of Kopreus contains the four principal divisions of an oration. The προοίμιον is very closely connected with the following division. The πρόθεσις, although short, is distinctly marked. Demophon has just arrived on the scene, and this gives the orator an excellent opportunity for making a statement of the case. The πίστεις consist of four divisions, and the poet, as a trained rhetorician would have done, puts the weakest argument in the middle (vv. 147–152). This argument proves to be of so little weight that the defendant treats it with silent contempt. The plaintiff reserves his strongest argument for the last, and dwells upon it to a considerable length (vv. 153–174), recounting all the disadvantages which will follow if the judge decides the case against him. The ἐπίλογος is of average length, and, as is frequently the case, concludes with a piece of wholesome advice.

In the ῥῆσις of the defendant the προοίμιον is an eulogy on Athens and her law courts, therefore an excellent introduction to his defence. The πρόθεσις, as usual in the ῥῆσις of the defendant, is omitted, because the judge is already acquainted with the circumstances of the case from the ῥῆσις of the plaintiff. In the πίστεις he answers the arguments of his opponent in the same order in which they were advanced, with the exception of γ. 147–152. After answering the arguments of the plaintiff, he wins his case by a skilful introduction of new arguments that could not be answered (vv. 205–219). The ἐπίλογος ends the ῥῆσις with an appeal to the judge for mercy and protection. It is somewhat longer than usual, but is not out of balance with the whole speech.

The clear and distinct manner in which the judge sums up the arguments and renders his decision should be especially noticed. His first reason for deciding in favor of the defendant is one which was barely touched upon by Iolaos (v. 196), but is the strongest argument in his own mind (vv. 238, 239). The two arguments advanced separately by Iolaos (vv. 205–213, 214–219) are combined by the judge and considered as one. The third reason for deciding as he does is a very common one, and is given in many similar situations both in actual trials and in other plays of the poet.

TROADES, 895–1059. Ῥήσεις, 914–965, 969–1032.

Troy has fallen, and the Trojan women have been assigned to the various leaders of the Greeks. Menelaos appears (v. 860) for the purpose of taking Helen to Greece, where she is to be put to death on account of the evils she has caused (vv. 876–879). At v. 895 Helen appears, and when informed she must die (vv. 901, 902), asks :

> ἔξεστιν οὖν πρὸς ταῦτ' ἀμείψασθαι λόγῳ,
> ὡς οὐ δικαίως, ἢν θάνω, θανούμεθα ;

To this Menelaos replies :

> οὐκ εἰς λόγους ἐλήλυθ', ἀλλά σε κτενῶν.

But it is unjust for a person to be executed without a trial ; and since Hekabe (who happens to be present) believes she can persuade Menelaos that Helen ought to die, she asks that the defendant be granted a hearing, after which she herself will make the ῥῆσις of the prosecution, and Menelaos can then sum up the arguments and render his decision (vv. 906–910). We have then a criminal case involving capital punishment. Helen, as defendant, pleads her own case ; Hekabe answers her arguments ; and Menelaos, as judge, renders his decision.

Ῥῆσις OF HELEN, 914–965.

1. Προοίμιον, 914–918 :

Since you consider me an enemy, perhaps you will not answer my arguments. But I will answer the charges which I think you will bring against me.[1]

2. Πρόθεσις omitted.

3. Πίστεις, 919–960 :

α. 919–922. In the first place, this woman was the direct cause of the evils because she gave birth to Paris, and Priam destroyed Troy because he did not kill his son.

β. 923–931 (κάλλει). Paris was the judge of the three goddesses. Pallas promised him Hellas; Hera promised him Asia and the confines of Europe;[2] Kypris, admiring my form, promised me to him if she won the prize for beauty. (Hence she is implicated.)

γ. 931–937. Kypris won the prize, and thus my marriage saved Hellas, since you are not subject to the barbarians. Hellas has been fortunate, but I (the cause of this) am condemned.

δ. 938–950. You will say that I do not touch upon the real question, viz., that I left your palace by stealth. I reply, that the evil genius of this woman, call him Alexander or Paris,[3] came with a powerful goddess as his ally. Charge the crime to her. Even Zeus is her slave.

ε. 951–960. You may maintain that after the death of Alexander I ought to have returned to the Greeks. This I tried to do, as the guards can bear witness, but I was forcibly detained by Deiphobos as his wife.

[1] Vv. 916 fg. A case of προκατάληψις. Cf. 951 fg.

[2] V. 928. Nauck rejects this verse, and says (Eur. Stud. II, p. 150): "Der eingeklammerte Vers gehört zu den absurdesten Fabricaten, mit denen jemals irgend ein Dichter besudelt worden ist."

[3] V. 942. For καὶ Πάριν Nauck would read εἴτ' ἀλάστορα. See his exhaustive comment on this verse in Eur. Stud. II, pp. 150–159.

4. Ἐπίλογος, 961–965 :

πῶς οὖν ἔτ' ἂν θνήσκοιμ' ἂν ἐνδίκως, πόσι,
πρὸς σοῦ δικαίως, ἣν ὁ μὲν βίᾳ γαμεῖ,
τὰ δ' οἴκοθεν κεῖν' ἀντὶ νικητηρίων
πικρῶς ἐδούλευσ' ; εἰ δὲ τῶν θεῶν κρατεῖν
βούλει, τὸ χρῄζειν ἀμαθές ἐστί σοι τόδε.

Ῥῆσις OF HEKABE, 969–1032.

1. Προοίμιον, 969, 970 :

ταῖς θεαῖσι[1] *πρῶτα σύμμαχος γενήσομαι*
καὶ τήνδε δείξω μὴ λέγουσαν ἔνδικα.

2. Πρόθεσις omitted.

3. Πίστεις, 971–1028 :

α. 971–982. I do not believe that Hera and Pallas are so foolish as to subject Argos and Athens to Phrygia. Their rivalry in regard to beauty was mere sport, and you cannot make that an argument in your defence.

β. 983–997. You maintain that Kypris assisted my son, but it was your own passion. All folly is attributed to Ἀφροδίτη by mortals, and rightly does the name of the goddess begin the word *ἀφροσύνη*.[2] Barbarian gold and splendor led you astray.

γ. 998–1009. Again you say my son took you by force. Who heard your cries as you were carried away? When you came to Troy your affections changed as the fortunes of battle wavered between the two armies.

δ. 1010–1028. You declare that you tried to escape from Troy, but could not. On the contrary, I often urged you to leave the city, but this did not please you, for you preferred to be worshiped by barbarians.[3]

[1] V. 969. *ταῖς θεαῖσι* MSS. Nauck, 3d ed., reads *τοῖς θεοῖσι*. See Aristotle, Rhet. III, 17, 15.

[2] V. 990. "Ἔστι δ' ἄλλος . . . τόπος . . . τῶν δεικτικῶν ἐκ τῶν ἐναντίων . . . ἀπὸ τοῦ ὀνόματος . . . ὡς ἡ Εὐριπίδου Ἑκάβη εἰς τὴν Ἀφροδίτην" — καὶ τοὔνομ' ὀρθῶς ἀφοσύνης ἄρχει θεᾶς. Aristot. Rhet. II, 23, 29.

[3] "Vv. 1020–1022 graviter laborant." Nauck. In Eur. Stud. II, p. 160, he suggests an improvement as follows:

4. Ἐπίλογος, 1029–1032 :

> Μενέλα', ἵν' εἰδῇς οἷ τελευτήσω λόγον,
> στεφάνωσον Ἑλλάδ' ἀξίως τήνδε κτανὼν
> σαυτοῦ, νόμον δὲ τόνδε ταῖς ἄλλαισι θὲς
> γυναιξί, θνήσκειν ἥτις ἂν προδῷ πόσιν.

Πίστεις of Helen.		Πίστεις of Hekabe.
β. 923–931	answered	β. 983–997.
γ. 931–937	"	α. 971–982.
δ. 938–950	"	γ. 998–1009.
ε. 951–960	"	δ. 1010–1028.

Menelaos did not enter the court-room as an impartial judge, for his decision had been already made (v. 905). He did not hear the arguments for the purpose of giving Helen an opportunity of escaping sentence of death, but simply because he had leisure to hear both sides of the case (v. 911). This is, then, a court scene, with arguments advanced and answered as in a regular trial, but is really no trial at all. In other words, Euripides saw a fine opportunity for pleasing his audience with a mere farce of a trial, and so made the speakers present the arguments. The verdict of the judge after the *ῥήσεις* of the defendant and plaintiff is but a repetition of his former determination. He agrees with Hekabe in thinking that Helen left Sparta of her own accord, that her argument in regard to Kypris is but *κόμπου χάριν* (v. 1038), and therefore she shall die (vv. 1036–1041). Helen makes a last appeal for mercy, but it is of no avail (vv. 1042, 1043). He orders the servants to conduct her to the ship, and after a few words with Hekabe the scene closes.

The *ῥῆσις* of Helen contains three of the four usual divisions, the *πρόθεσις* being omitted. In the *προοίμιον* she fears that her opponent may not answer her arguments, but declares she will make her defence whether she is answered or not. The *πίστεις*, as we should expect in a case where the

> *ἐν τοῖς Ἀλεξάνδρου γὰρ ὑβρίζειν δόμοις*
> *καὶ προσκυνεῖσθαι βαρβάρων ὑπηρέταις*
> *μέγ' ἀγαθὸν ἦν σοι* (or *ἡγοῦ*).

defendant's life is at stake, extend through nearly the whole of the ῥῆσις. First, Helen endeavors to shift the responsibility for the evils consequent upon her marriage to Paris back to the parents of her Trojan husband. Then she maintains that Kypris is responsible for her actions, and introduces a sophistic argument in her defence. By her elopement with Paris she maintains that Greece was rescued from falling into the hands of the barbarians. In the last division of the πίστεις she introduces and answers a plausible argument which may be advanced by her opponent. Her ῥῆσις presents several distinct cases of προκατάληψις. In the ἐπίλογος she turns directly to Menelaos, whom she addresses as husband, and makes an appeal for justice.

The ῥῆσις of Hekabe in reply is in harmony with the passionate nature of the aged ex-queen of Troy. She plunges at once "in medias res." Passing over the first argument of Helen, which is in fact so ridiculous as to be no argument at all, she first answers the weakest argument, which her opponent had shrewdly placed in the middle of her ῥῆσις. Of this reply Aristotle (Rhet. III, 17, 15) says, ἥψατο πρῶτον τοῦ εὐηθεστάτου. She then takes up and answers each of Helen's arguments, and in the ἐπίλογος addressing Menelaos, as Helen had done, urges him to act in a manner worthy of himself.

By comparing the arguments of Helen with Gorgias' Encomion, we find some very interesting coincidences. In v. 924 fg. Helen says :

> ἔκρινε τρισσὸν ζεῦγος ὅδε τριῶν θεῶν.
> καὶ Παλλάδος μὲν ἦν Ἀλεξάνδρῳ δόσις
> Φρυξὶ στρατηγοῦνθ' Ἑλλάδ' ἐξανιστάναι,
> Ἥρα θ' ὑπέσχετ' Ἀσιάδ' Εὐρώπης θ' ὅρους
> [τυραννίδ' ἕξειν, εἴ σφε κρίνειεν Πάρις].
> Κύπρις δὲ τοὐμὸν εἶδος ἐκπαγλουμένη
> δώσειν ὑπέσχετ', εἰ θεὰς ὑπερδράμοι
> κάλλει. τὸν ἐνθένδ' ὡς ἔχει σκέψαι λόγον.
> νικᾷ Κύπρις θεά.

And in v. 940:

ἦλθ' οὐχὶ μικρὰν θεὸν ἔχων αὑτοῦ μέτα
ὁ τῆσδ' ἀλάστωρ.

Also in v. 948 fg.:

τὴν θεὸν κόλαζε καὶ Διὸς κρείσσων γενοῦ,
ὃς τῶν μὲν ἄλλων δαιμόνων ἔχει κράτος,
κείνης δὲ δοῦλός ἐστι. συγγνώμη δ' ἐμοί.

Finally, in vv. 964, 965:

εἰ δὲ τῶν θεῶν κρατεῖν
βούλει, τὸ χρῄζειν ἀμαθές ἐστί σοι τόδε.

This argument of Helen is quite summarily disposed of by Hekabe in v. 988 fg., but Gorgias with his sophistry defends Helen on the same grounds, and tries to prove that she is entirely free from guilt. For, says he (Gorg., Encom. Hel. 6):

Ἡ γὰρ τύχης βουλήμασι καὶ θεῶν βουλεύμασι καὶ ἀνάγκης ψηφίσμασιν ἔπραξεν ἃ ἔπραξεν, ἢ βίᾳ ἁρπασθεῖσα, ἢ λόγοις πεισθεῖσα, ἢ ἔρωτι ἁλοῦσα. Εἰ μὲν οὖν διὰ τὸ πρῶτον, ἄξιος αἰτιᾶσθαι ὁ αἰτιώμενος. θεοῦ γὰρ προθυμίαν ἀνθρωπίνῃ προμηθείᾳ ἀδύνατον κωλύειν. πέφυκε γὰρ οὐ τὸ κρεῖσσον ὑπὸ τοῦ ἥσσονος κωλύεσθαι, ἀλλὰ τὸ ἧσσον ὑπὸ τοῦ κρείσσονος ἄρχεσθαι καὶ ἄγεσθαι, καὶ τὸ μὲν κρεῖσσον ἡγεῖσθαι, τὸ δὲ ἧσσον ἕπεσθαι. θεὸς δ' ἀνθρώπου κρεῖσσον καὶ βίᾳ καὶ σοφίᾳ καὶ τοῖς ἄλλοις. εἰ οὖν τῇ τύχῃ καὶ τῷ θεῷ τὴν αἰτίαν ἀναθετέον, τὴν Ἑλένην τῆς δυσκλείας ἀπολυτέον.

Also in sec. 15:

εἰ γὰρ ἔρως ἦν ὁ ταῦτα πάντα πράξας, οὐ χαλεπῶς διαφεύξεται τὴν τῆς λεγομένης γεγονέναι ἁμαρτίας αἰτίαν. ἃ γὰρ ὁρῶμεν, ἔχει φύσιν οὐχ ἣν ἡμεῖς θέλομεν ἀλλ' ἣν ἕκαστον ἔτυχε· διὰ δὲ τῆς ὄψεως ἡ ψυχὴ κἀν τοῖς τρόποις τυποῦται.

In sec. 19 he finishes his arguments thus:

εἰ οὖν τῷ τοῦ Ἀλεξάνδρου σώματι τὸ τῆς Ἑλένης ὄμμα ἡσθὲν προθυμίαν καὶ ἄμιλλαν ἔρωτος τῇ ψυχῇ παρέδωκε, τί θαυμαστόν; ὃς εἰ μὲν θεὸς ⟨ὢν ἔχει⟩ θεῶν θείαν δύναμιν, πῶς ἂν ὁ

ἥσσων εἴη τοῦτον ἀπώσασθαι καὶ ἀμύνασθαι δυνατός; εἰ δ' ἐστὶν ἀνθρώπινον νόσημα καὶ ψυχῆς ἀγνόημα, οὐχ ὡς ἁμάρτημα μεμπτέον ἀλλ' ὡς ἀτύχημα νομιστέον· ἦλθε γὰρ οἷς ἦλθε τύχης ἀγρεύμασιν, οὐ γνώμης βουλεύμασι, καὶ ἔρωτος ἀνάγκαις, οὐ τέχνης παρασκευαῖς.

Compare the argument of Helen before Theonöe in Eur. Hel. 929 fg. :

> *ἦν δ' Ἑλλάδ' ἔλθω κἀπιβῶ Σπάρτης ποτέ,*
> *κλύοντες εἰσιδόντες ὡς τέχναις θεῶν*
> *ὤλοντ', ἐγὼ δὲ προδότις οὐκ ἤμην φίλων.*

Also the remarkable statement made by the "deus ex machina" in Elek. 1282 fg. :

> *Ζεὺς δ', ὡς ἔρις γένοιτο καὶ φόνος βροτῶν,*
> *εἴδωλον Ἑλένης ἐξέπεμψ' ἐς Ἴλιον.*

Such arguments as the above were common enough among the sophists at Athens in Euripides' time, and no doubt the poet drew from them in this *ῥῆσις* of Helen as well as in other speeches, especially the *ῥῆσις* of Kassandra in Troad. 353–405, where the sophistic element is at its highest in Euripides.

B. — DISCUSSIONS BETWEEN TWO OR MORE SPEAKERS.

1. Alkestis, 614–738. Ῥήσεις, 629–672, 675–705.
Disputants, Admetos and Pheres.

2. Andromache, 147–746. Ῥήσεις, 147–180, 183–231, 319–363, (384–420), 590–641, 645–690, (693–726).
Disputants, Hermione and Andromache; Andromache and Menelaos; Menelaos and Peleus.

3. Bakchai, 210–369. Ῥήσεις, 266–327, 330–342.
Disputants, Teiresias, Kadmos, and Pentheus.

4. Kyklops, 203–355. Ῥήσεις, 285–312, 316–347.
Disputants, Odysseus and Kyklops.

5. Elektra, 998–1140. Ῥήσεις, 1011–1050, 1060–1096.

Disputants, Klytaimnestra and Elektra.

6. Herakles Mainomenos, 140–251; 1229–1357. Ῥήσεις, 140–169, 170–235; 1255–1310, 1313–1339.

Disputants, Lykos and Amphitryon; Herakles and Theseus.

7. Hippolytos, 902–1101. Ῥήσεις, 936–980, 983–1033.

Disputants, Theseus and Hippolytos.

8. Iphigeneia en Aulidi, 317–414. Ῥήσεις, 334–375, 378–401.

Disputants, Menelaos and Agamemnon.

9. Medeia, 446–626. Ῥήσεις, 465–519, 522–575.

Disputants, Medeia and Jason.

10. Ion, 517–675. Ῥῆσις, 585–647.

Disputant, Ion.

ANALYSIS OF ELEKTRA, 998–1140; HIPPOLYTOS, 902–1101; AND MEDEIA, 446–626.

Elektra, 998–1140. Ῥήσεις, 1011–1050, 1060–1096.

After the murder of Agamemnon by Klytaimnestra, the latter gave her daughter in marriage to a poor farmer, and closed the doors of her palace to Elektra and Orestes. Klytaimnestra is afterwards summoned to the country, the messenger alleging that Elektra has just been delivered of her first-born. At v. 998 the queen arrives in grand style with her attendants before the humble cottage of Elektra. She here meets the daughter, who immediately accuses her mother of banishing Orestes and herself from the palace of their murdered father. This causes Klytaimnestra to enter into a long argument in defence of herself, to which Elektra replies.

Ῥῆσις OF KLYTAIMNESTRA, 1011–1050.

(Vv. 1011, 1012 are an answer to the preceding words of Elektra.)

1. Προοίμιον, 1013–1017:

> λέξω δέ· καίτοι δόξ' ὅταν λάβῃ κακὴ
> γυναῖκα, γλώσσῃ πικρότης ἔνεστί τις·
> ὡς μὲν παρ' ἡμῖν, οὐ καλῶς· τὸ πρᾶγμα δὲ
> μαθόντας, ἦν μὲν ἀξίως μισεῖν ἔχῃ,
> στυγεῖν δίκαιον· εἰ δὲ μή, τί δεῖ στυγεῖν;

2. Πρόθεσις included in the πίστεις.

3. Πίστεις, 1018–1048:

a. 1018–1023. Tyndareos gave me in marriage to your father, but not that my husband might kill my children, which he did; for he allured my daughter from home to Aulis by a promise of marriage to Achilles, and there put her to death.

β. 1024–1029. If he had killed her to prevent the capture of a city, or to save the rest of his children, it would have been pardonable, but he did it on account of the wantonness of Helen and the laches of her husband. .

γ. 1030–1034. Although I felt deeply injured by that act, I would not have killed my husband, had he not returned with a raving, god-possessed young dame to share his bed.

δ. 1035–1040. Women are foolish, I grant; but when a husband neglects his home-duties, it is natural for the wife to imitate him and secure another lover. She then has all the blame.

ε. 1041–1048. If Menelaos had been secretly carried away from home, ought I to have sacrificed Orestes in order to save my sister's husband?[1] How would your father have regarded that? Ought he not to die, since he killed my daughter?

[1] Example of παράδειγμα. Cf. Orest. 507 fg.

4. Ἐπίλογος, 1049, 1050:

λέγ' εἴ τι χρῄζεις κἀντίθες παρρησίᾳ
ὅπως τέθηκε σὸς πατὴρ οὐκ ἐνδίκως.

After a few words have passed between Elektra and Klytaimnestra (vv. 1055–1059), the former delivers a ῥῆσις in reply to the above arguments.

Ῥῆσις OF ELEKTRA, 1060–1096.

1. Προοίμιον, 1060, 1061:

λέγοιμ' ἄν· ἀρχὴ δ' ἥδε μοι προοιμίου.[1]
εἴθ' εἶχες, ὦ τεκοῦσα, βελτίους φρένας.

2. Πρόθεσις included in the first part of the πίστεις.

3. Πίστεις, 1062–1093 (ζῶσαν):

α. 1062–1068. Helen and yourself are worthy of praise in regard to beauty, but you are both sinful and unworthy of Kastor, for she left her husband[2] willingly,[3] and you have killed the noblest man of Greece under the pretext of avenging your daughter's death.

β. 1069–1075. Before your daughter's death, as soon as your husband had departed from home, you began to arrange your auburn locks in front of the mirror. The wife who takes pains with her toilet when her husband is away from home has some wickedness in view.

γ. 1076–1085. You alone of all the Grecian dames were filled with joy when the Trojans were successful, but when they were defeated you were downcast because you did not wish Agamemnon's return from Troy.[4]

δ. 1086–1093 (ζῶσαν). What wrong have I and my brother done to you? After killing your husband, why did you not share our father's home with us rather than marry again?

[1] V. 1060. "προοιμίου absurdum." Nauck. J. Kvíčala (Eur. Stud. I, p. 73) suggests προοίμιον.

[2] V. 1065. ἀπῴχετο for ἀπώλετο of the MSS. is Pierson's conjecture, now generally accepted.

[3] Cf. this statement with Troad. 373, 998.

[4] Retain v. 1079.

Your present husband is not banished to avenge your son, nor is he killed to avenge me, although I suffer a living death at his hands.

4. Ἐπίλογος, 1093 (εἰ δ')–1096 :

> εἰ δ' ἀμείψεται
> φόνον δικάζων φόνος, ἀποκτενῶ σ' ἐγὼ
> καὶ παῖς Ὀρέστης πατρὶ τιμωρούμενοι·
> εἰ γὰρ δίκαι' ἐκεῖνα, καὶ τάδ' ἔνδικα.[1]

After a short conversation between Klytaimnestra and Elektra, in the course of which the usual *στιχομυθία* is used rather sparingly (1116–1123, 1128–1131), the scene closes with the departure of Klytaimnestra to offer sacrifice.

The *ῥῆσις* of Klytaimnestra contains three distinct and separate divisions, the *πρόθεσις* being included in the first part of the *πίστεις*. The *προοίμιον* is general except v. 1015 — *ὡς μὲν παρ' ἡμῖν* — by which the general statement is applied to herself. In the *πίστεις* we find four arguments advanced in defence of her crime. The last of these is a remarkable hypothetical case which corresponds in every particular to the real one, and to this hypothesis it is implied there can be but one answer. The *ἐπίλογος* is short, and simply an invitation to the opponent to answer the arguments advanced.

In the *ῥῆσις* of Elektra the *προοίμιον* is very short and to the point. In the first verse the word *προοίμιον* occurs, which is found in but one other passage in the rhetorical *ῥήσεις* of Euripides. In Hek. 1195 it occurs at the end of the *προοίμιον*. In the *πίστεις* Elektra has not followed the order of the arguments of her mother. In fact it cannot be said that she has answered any one of the arguments clearly and distinctly. She barely touches upon an answer to *β*. 1024–1029 in the words *σκῆψιν προτείνουσ'*, *κ.τ.λ.* (1067 fg.), but

[1] Kirchhoff and Nauck rightly bracket vv. 1097–1101. The *ῥῆσις* ends far better with v. 1096 than with v. 1099. Cf. *τάδ' ἔνδικα* (1096) with *οὐκ ἐνδίκως* (1050).

says not a word in direct reply to γ. 1030–1034 and ε. 1041–1048. However, it must be said that the ῥῆσις as a whole is an answer to that of Klytaimnestra, because other arguments are advanced to account for the crime committed by the defendant. So indirectly Elektra answers γ. 1030–1034 and δ. 1035–1040 by stating (1069 fg.) that her mother was false to Agamemnon long before he brought Kassandra to his palace. The ἐπίλογος is a peculiar one. It is the decision of a judge rather than the conclusion of a ῥῆσις. Elektra has tried her mother, as it were, and found her guilty of murder. She therefore renders judgment against her and sentence of death.

Vv. 1051–1056, generally given to Elektra, have caused the commentators much trouble. Nauck's change — δίκην ἔλεξας· σὴ δίκη for δίκαι' ἔλεξας, ἡ δίκη (1051) — helps us but little, and we had better retain the reading of the MSS. Wilamowitz, Anal. Eur. p. 71, after quoting these verses, says:

"Ab Electra iusta protulisse Clytaemnestram dici non posse intellexerunt, correxerunt igitur, varium et inprobabilem in modum. 1054 et 55 cohaerere non docuerunt. 'Ces vers ont été mal divisés, puis mal corriges' dicit Weilius inprobabilia molitus, vere, at alio quam voluit sensu. *1051–1054, chori sunt. 1055, 1056, Electrae.*"

This is a satisfactory explanation of a very troublesome passage. Besides the objection given by Wilamowitz, it cannot be explained why the poet should make the second speaker give her opinion of the arguments of her opponent at the very beginning, then check herself after four verses, and remind her mother of the last words of the previous ῥῆσις. There is not a parallel to this in all the rhetorical ῥήσεις of Euripides. There is no doubt that vv. 1051–1054 are far better adapted to the chorus, as reflecting the opinion of the audience, than they are to Elektra, and it is the general rule for the chorus to have two or more verses between such ῥήσεις.

HIPPOLYTOS, 902–1101. Ῥήσεις, 936–980, 983–1033.

This play contains two long forensic ῥήσεις by Theseus and Hippolytos, with an introduction in the form of a dialogue between father and son (vv. 903–935). After the arguments have been presented by plaintiff and defendant, the discussion closes with a series of distichs, vv. 1064–1089.

Phaidra, the second wife of Theseus, has fallen in love with Hippolytos, the son of Theseus by his first wife. After learning that her love has been disclosed by an old nurse and spurned by Hippolytos, she writes a letter, incriminating the young man, and then commits suicide. Theseus soon arrives, and after reading the letter is very angry. At v. 902 Hippolytos appears, and innocently asks what is the cause of the disturbance. The reply of Theseus (v. 916 fg.) is couched in general terms, and takes the form of an invective against men who seem to be friends but are really foes (vv. 925–931). These general statements convey to Hippolytos sufficient meaning to arouse his suspicion, and he asks (v. 932 fg.):

> ἀλλ' ἦ τις εἰς σὸν οὖς με διαβαλὼν ἔχει
> φίλων, νοσοῦμεν δ' οὐδὲν ὄντες αἴτιοι;

Theseus now speaks out clearly, and makes the definite charge against his son.

Ῥῆσις OF THESEUS, 936–980.

1. Προοίμιον, 936–942:

If man's audacity continues to increase, the gods must add another earth to the present one, in order to have a place for the impious and base.

2. Πρόθεσις, 943–945:

> σκέψασθε δ' εἰς τόνδ', ὅστις ἐξ ἐμοῦ γεγὼς
> ἤσχυνε τἀμὰ λέκτρα κἀξελέγχεται
> πρὸς τῆς θανούσης ἐμφανῶς κάκιστος ὤν.

3. Πίστεις, 946–970:

a. 946–957. Look in your father's face. Do you boast of

association with gods and of chastity? I have no faith in your boasts and Orphic rites.[1]

β. 958–965. She is dead. Do you think this will save you? It is the most convincing proof of all. This is stronger evidence than all *ὅρκοι* and *λόγοι*.

γ. 966–970. Do you say that folly is in woman's nature but not in man's? Young men are no stronger against temptation than women are when Kypris distracts their mind.

4. *Ἐπίλογος*, 971–980:

νῦν οὖν τί ταῦτα σοῖς ἀμιλλῶμαι λόγοις
νεκροῦ παρόντος μάρτυρος σαφεστάτου;

Begone, and leave my realms! If I allow myself to be defeated by you, my reputation will be lost.

Ῥῆσις of Hippolytos, 983–1033.

1. *Προοίμιον*, 983–991 (*ἀφεῖναι*):

The case (of my opponent) has fair arguments until one examines it closely. I am no orator to harangue the people,[2] but nevertheless I must speak out in my own defence.

2. *Πρόθεσις* omitted.

3. *Πίστεις*, 991 (*πρῶτα*)–1024:

α. 991–1006. I will begin by answering your first charge. I revere the gods, and treat my friends the same at all times. I am wholly innocent of the charge, and have never touched woman.

β. 1007–1020. If you do not believe I am innocent, you should prove me guilty. Did I wish to usurp your throne? I should be foolish to do so. But (you say) "it is sweet to

[1] Vv. 952, 953. Nauck (Eur. Stud. II, p. 38) recommends the following reading:

σίτοις νυν αὔχει καὶ δι' ἀψύχου βορᾶς
ἰὼν καπήλευ', Ὀρφέα τ' ἄνακτ' ἔχων.

[2] Vv. 988, 989. Arist. Rhet. II, 22, 3: *φασὶν οἱ ποιηταὶ τοὺς ἀπαιδεύτους παρ' ὄχλῳ μουσικωτέρως λέγειν.* Cf. also Plut., de Educ. Lib. 9, 6 B.

rule." Not so. I prefer to be first in the Hellenic contests and second in the state.[1]

γ. 1021–1024. One argument yet remains. If I had a witness such as myself, and if she were alive, you would see by the facts of the case who is the guilty one.

4. Ἐπίλογος, 1025–1033:

I swear by Zeus and Earth that I am innocent of the charge. But why she took her life I do not know.[2]

Πίστεις of Theseus.		Πίστεις of Hippolytos.
a. 946–957	answered	*a.* 991–1006.
β. 958–965	"	γ. 1021–1024.
γ. 966–970	"	β. 1007–1020.

In the preceding discussion the ῥῆσις of Theseus is complete as an oration, and contains the four divisions distinctly defined. The προοίμιον is a general statement, but he intends it to be applied to his son. Theseus is plaintiff in the case, and, since he has the opening speech, states the charge (943–945). The πίστεις of each ῥῆσις contain three divisions, and are about the same length. Each of the main arguments of Theseus is answered by Hippolytos, but the order is changed somewhat. The principal divisions of the ῥήσεις are in some cases distinctly marked, as the following verses show :

V. 971. νῦν οὖν τί ταῦτα σοῖς ἁμιλλῶμαι λόγοις,
991, 992. πρῶτα δ' ἄρξομαι λέγειν,
ὅθεν μ' ὑπῆλθες πρῶτον κ.τ.λ.
1021. ἓν οὐ λέλεκται τῶν ἐμῶν, τὰ δ' ἄλλ' ἔχεις.

Each ἐπίλογος begins with 'νῦν' (vv. 971, 1025).

Medeia, 446–626. Ῥήσεις, 465–519, 522–575.

Jason, leader of the Argonautic expedition, married Medeia, who had assisted him in obtaining the golden fleece. He

[1] V. 1016 fg. Cf. Ion 625 fg.

[2] Vv. 1034, 1035. "Halte ich es für wahrscheinlich dass die beiden Verse überhaupt dem Euripides fremd sind. Ihr Wegfall ist kein Verlust, sondern ein Gewinn." Nauck. See his discussion of these verses in Eur. Stud. II, 39–41.

afterwards became enamored of Glauke, the daughter of Kreon, and Medeia was ordered by the king to depart from Korinth with her two children. After Medeia has been sentenced by the king to banishment, Jason appears, accuses her of having unduly abused the royal family, and declares that for this reason she has been banished. He comes, however, with the offer of pecuniary aid for their children (vv. 448–458). Medeia charges him with injustice and inconstancy, and delivers a bitter invective against him. He replies in a *ῥῆσις* of about the same length.

Ῥῆσις of Medeia, 465–519.

1. *Προοίμιον*, 465–474:

You utter wretch, you have come, have you?[1] This is not courage or boldness, to look in the face of friends you have injured, but the greatest evil among men, — insolence.

> *εὖ δ' ἐποίησας μολών,*
> *ἐγώ τε γὰρ λέξασα κουφισθήσομαι*
> *ψυχὴν κακῶς σε καὶ σὺ λυπήσει κλύων.*

2. *Πρόθεσις*, 475–498:

> *ἐκ τῶν δὲ πρώτων πρῶτον ἄρξομαι λέγειν.*

I saved your life when you were sent to overcome the fire-breathing bulls, and I slew the dragon that guarded the golden fleece. I deserted home and kindred to come with you to Iolchos. After receiving such favors, you have deserted me and taken another wife. You have broken the oaths you made before the gods, and I am ruined.

3. *Πίστεις*, 499–515:

a. 499–508. Come, I will converse with you as a friend, — although expecting no advantage, — because when questioned you will appear the greater villain. Where now shall I turn? To the home I abandoned? To the sad daughters of Pelias? A fine reception they would give me after killing their father. I have made enemies of my friends to help you.

[1] V. 468 is probably interpolated from v. 1324. Klotz, however, defends it.

β. 509–515. For this you have made me a happy wife indeed, and a wonderful husband I have in you if, as an exile, I am driven away to wander with my children.

4. Ἐπίλογος, 516–519:

> ὦ Ζεῦ, τί δὴ χρυσοῦ μὲν ὃς κίβδηλος ᾖ
> τεκμήρι' ἀνθρώποισιν ὥπασας σαφῆ,
> ἀνδρῶν δ' ὅτῳ χρὴ τὸν κακὸν διειδέναι,
> οὐδεὶς χαρακτὴρ ἐμπέφυκε σώματι;

Ῥῆσις of Jason, 522–575.

1. Προοίμιον, 522–525:

I must not be slow to answer, but as a skilful pilot with close-reefed sail,[1] I must escape from the violent storm of your words.

2. Πρόθεσις omitted.

3. Πίστεις, 526–567:

α. 526–533. I consider that Kypris was the person who saved me.[2] Subtle and shrewd are your arguments, but it was Eros that forced you to assist me. This point, however, I will not press too closely.

β. 534–544. You have received more than you gave, as I will prove. You live in Greece instead of among barbarians. You enjoy the advantage of justice and law, and are not subject to mere force.[3] You have gained a reputation among the Greeks which otherwise you would not have.

Vv. 545, 546:

> τοσαῦτα μέν σοι τῶν ἐμῶν πόνων πέρι
> ἔλεξ'· ἄμιλλαν γὰρ σὺ προύθηκας λόγων.[4]

γ. 547–567 (ὀνῆσαι). You blame me because I married into the royal family. In answer I will say that I was (1)

[1] See the scholiast and Elmsley for a different interpretation of this passage.

[2] Vv. 526–528. Nauck reads ἐπεὶ σὴν for ἐπειδὴ; also σωτηρίας ναύκληρον for ναυκληρίας σώτειραν. See Nauck, Eur. Stud. I, p. 120.

[3] V. 538. κράτος, Nauck. Retain χάριν of the MSS. and cf. Soph. Antig. 30.

[4] V. 546. Cf. Suppl. 428.

wise, because I could not have gained a greater advantage (vv. 551–554); (2) prudent, in that I was not influenced simply by a desire for a new wife (vv. 555–558); (3) a friend to you and my children, because we could rise from poverty to wealth (vv. 559–567).

4. Ἐπίλογος, 567–575. It is the thought of your bed that grates upon your feelings.

> χρῆν ἄρ' ἄλλοθέν ποθεν βροτοὺς
> παῖδας τεκνοῦσθαι, θῆλυ δ' οὐκ εἶναι γένος·
> χοὔτως ἂν οὐκ ἦν οὐδὲν ἀνθρώποις κακόν.

Ῥῆσις of Medeia.			Πίστεις of Jason.
Πρόθεσις	475–487	answered	*α.* 526–533.
	488–498	"	*β.* 534–544.
Πίστεις	*β.* 509–515	"	*γ.* 547–567.

The *προοίμιον* in the *ῥῆσις* of Medeia is an answer to the insulting language of Jason immediately preceding, and at the same time an introduction to the *πρόθεσις*. In this *ῥῆσις*, as in that of Menelaos in Iph. en Aul. 337 fg., we find an elaborate *πρόθεσις*, in which Medeia relates the past actions of Jason and her assistance to him. The *πίστεις* contain little that can be called argumentative. It is not her purpose to persuade him to relent, but rather to prove him to be the utter wretch that he is. We should notice particularly vv. 475, 545, 546, as distinctly marking the dividing lines of the parts of the *ῥήσεις*. The *ἐπίλογος* of Medeia is excellent, and may be compared with the best in any of the speeches.

Jason's speech is rather an *ἄδικος λόγος*, but Euripidean sophistry gives him a fairly good argument. Almost the whole *ῥῆσις* is occupied with answering the numerous charges of Medeia, and in endeavoring to prove that his conduct is justifiable. His arguments in vv. 551–567, where he tries to prove that he has shown *σοφίαν*, *σωφροσύνην*, and *φιλίαν* in his course of action, would be almost amusing did they not pertain to such a serious question and involve still more serious consequences. The *προοίμιον* and *ἐπίλογος*, as well as

the several parts of the πίστεις, are clearly defined and set forth with the skill of a practised lawyer.

II. — Δικανικοὶ καὶ Συμβουλευτικοί.

PARTLY DISCUSSION AND PARTLY PERSUASION.

1. Hekabe, 218–437. Ῥήσεις, 251–295, 299–331, 342–378.

Disputants, Hekabe and Odysseus.

Pleader, Polyxena.

2. Hiketides, 87–584. Ῥήσεις, 163–192, (195–249), 297–331, 334–364, (409–425), 426–462, 465–510, 513–563.

Pleaders, Adrastos and Aithra.

Judge, Theseus.

Disputants, Herald and Theseus.

3. Iphigeneia en Aulidi, 1106–1275. Ῥήσεις, 1146–1208, 1211–1252.

Disputant, Klytaimnestra.

Pleader, Iphigeneia.

Judge, Agamemnon.

4. Phoinissai, 446–637. Ῥήσεις, 469–496, 499–525, 528–585.

Disputants, Polyneikes and Eteokles.

Mediator, Iokaste.

ANALYSIS OF PHOINISSAI, 446–637.

The two sons of Oidipous, Eteokles and Polyneikes, having agreed to rule Thebes year by year alternately, the younger withdrew for a year. But at the end of the first year Eteokles proved false to his promise, and would not relinquish the rule. Polyneikes thereupon formed an alliance with Adrastos, king of Argos, and after collecting an army marched against Thebes. When the invading army appeared before the walls of the city, Iokaste, the mother of the rival claim-

ants, persuaded them to meet and try to settle their dispute. Polyneikes then enters the city, and the brothers state their case in the presence of Iokaste.

'Ρῆσις OF POLYNEIKES, 469–496.

1. Προοίμιον, 469–472:

Truth is simple, and justice needs no cunning language, but a false argument requires sophistic expedients.[1]

2. Πρόθεσις, 473–493:

α. 473–483. To avoid the curse of Oidipous I voluntarily left this land, after agreeing with Eteokles that we should each rule a year in turn, and thus avoid enmity and bloodshed.[2] He has not kept his oath, but holds the sovereignty and my share of the ruling power.

β. 484–493. Even now I am willing to dismiss the army if I am granted my rights, and after ruling my allotted time I will resign. If this be not granted, I shall try to gain it by force of arms, and I call the gods to witness the justice of my cause.

3. Πίστεις omitted.

4. Ἐπίλογος, 494–496:

> ταῦτ' αὖθ' ἕκαστα, μῆτερ, οὐχὶ περιπλοκὰς
> λόγων ἀθροίσας εἶπον, ἀλλὰ καὶ σοφοῖς
> καὶ τοῖσι φαύλοις ἔνδιχ', ὡς ἐμοὶ δοκεῖ.

'Ρῆσις OF ETEOKLES, 499–525.

1. Προοίμιον, 499–502:

> εἰ πᾶσι ταὐτὸ καλὸν ἔφυ σοφόν θ' ἅμα,
> οὐκ ἦν ἂν ἀμφίλεκτος ἀνθρώποις ἔρις·
> νῦν δ' οὔθ' ὅμοιον οὐδὲν οὔτ' ἴσον βροτοῖς,
> πλὴν ὀνόμασιν, τὸ δ' ἔργον οὐκ ἔστιν τόδε.

2. Πρόθεσις omitted.

[1] This *προοίμιον* is quoted by Stobaeus, Flor. XI, 12. Compare the thought with Hek. 1187–1194.

[2] Nauck rightly suspects v. 480. See Eur. Stud. I, p. 76.

3. Πίστεις, 503–520:

α. 503–508. I would do all in my power to gain the greatest gift of the gods, — sovereignty, — and I am unwilling to resign it to another.

β. 509–514. It is cowardly to lose the greater and accept the less. I should feel ashamed, and the citizens of Thebes would reproach me, if I should yield to my brother when he has come in arms.

γ. 515–520. He ought to have offered to settle the question by arbitration rather than enforce his claims by arms. If he wishes to live here as a citizen he may do so, but I will never consent[1] to become his subject.

4. Ἐπίλογος, 521–525:

Therefore come fire, sword, and chariot, for I will not give up my sovereignty.

> εἴπερ γὰρ ἀδικεῖν χρή, τυραννίδος πέρι
> κάλλιστον ἀδικεῖν, τἄλλα δ' εὐσεβεῖν χρεών.

Ῥῆσις of Iokaste, 528–585.

1. Προοίμιον, 528–530:[2]

> ὦ τέκνον, οὐχ ἅπαντα τῷ γήρᾳ κακά,
> Ἐτεόκλεες, πρόσεστιν· ἀλλ' ἡμπειρία
> ἔχει τι λέξαι τῶν νέων σοφώτερον.

2. Πρόθεσις omitted.

3. Πίστεις, 531–583:

α. 531–548.[3] (Addressed to Eteokles.) Why do you court distinction, the greatest evil of the gods, which has destroyed many homes and cities? It is far better to respect the law of equality, which binds friends to friends, cities to cities, and has established fair dealing among men. Even night and day proceed in equal rounds, and neither one is envious of the other.

[1] V. 519. Retain μεθήσομαι of the MSS.

[2] This προοίμιον is also quoted by Stobaeus, Flor. XV, 1.

[3] Cf. Dio Chrysost. XVII, p. 287.

β. 549–557. Why do you prize sovereignty so highly? It is but prosperity with injustice, — an empty honor. Why toil laboriously when you have much at home?[1] Wealth is but a name, and riches belong not to men, but to the gods.

γ. 558–565. I propose to you two alternatives. Do you prefer to rule or to save the city? Do you say you prefer to hold the throne? Then, if he is victorious, you will see Thebes conquered and many captive maidens ruined by your enemies.

δ. 568–583:[2]

σοὶ μὲν τάδ' αὐδῶ, σοὶ δὲ Πολύνεικες λέγω.

(Addressed to Polyneikes.) Adrastos has not wisely conferred his favors, and you are foolish for coming to destroy the city. Suppose you take the city — Heaven forbid! — how can you inscribe upon the spoils:

"Θήβας, πυρώσας τάσδε Πολυνείκης θεοῖς
ἀσπίδας ἔθηκε;"

On the other hand, if you are defeated, how can you return to Argos after leaving the dead? Many will say:

"ὦ κακὰ μνηστεύματα
Ἄδραστε προσθείς, διὰ μιᾶς νύμφης γάμον
ἀπωλόμεσθα."

4. Ἐπίλογος, 584, 585:

μέθετον τὸ λίαν, μέθετον· ἀμαθίαι δυοῖν,
εἰς ταὔθ' ὅταν μόλητον, ἔχθιστον κακόν.

The arguments of Iokaste, powerful as they are, have no effect on Eteokles. He declares that words can accomplish nothing in the present contest (588, 589), and orders his brother to leave the city (593). This causes a very passionate debate to take place between the brothers in a series of trochaic verses (594–624). At first the debate is conducted in στιχομυθία (596–602), but as their anger increases they change to ἡμιστίχια, and thus continue to the end (603–624).

[1] V. 552. Retain ἐν δώμασι of the MSS. On εὐδαίμονα (the reading of Nauck) see Eur. Stud. I, 78.

[2] Dindorf rightly condemns vv. 566, 567. Nauck puts v. 567 in brackets.

In vv. 625–635 Polyneikes calls upon the gods to witness the injustice he receives, and as he departs Eteokles exclaims:

> ἔξιθ' ἐκ χώρας· ἀληθῶς δ' ὄνομα Πολυνείκην πατὴρ
> ἔθετό σοι θείᾳ προνοίᾳ νεικέων ἐπώνυμον.

There are several points in the above ῥήσεις that are worthy of special attention. The most striking peculiarity is the length and arrangement of the three speeches. The ῥῆσις of Polyneikes is exactly the same length as that of his brother. The two ῥήσεις taken together contain about the same number of verses as one ῥῆσις in other discussions. In the ῥῆσις of Polyneikes also the πίστεις are wanting. The πρόθεσις is the part that is generally omitted, but here we find the whole ῥῆσις is practically limited to the πρόθεσις or διήγησις. The ῥῆσις of Eteokles, on the other hand, is nearly all occupied with the πίστεις. The poet has skilfully placed the best arguments last, in order to leave as good an impression as possible of this unjust side of the case. The προοίμιον and ἐπίλογος are clearly defined in each ῥῆσις. Another peculiar feature is that Iokaste is not a judge to decide the contest, but acts as mediator, and the ῥῆσις which she delivers is almost exactly the length of both the preceding combined. She addresses the last speaker first, refutes every argument he has advanced, then turns to the first speaker and urges him not to make war on his own city. Her arguments, however, are of no avail.

The scholiast has the following interesting observation on the ῥῆσις of Iokaste:

> ἐν τούτοις οὐδὲν Ἰοκάστη συμβεβούλευκε τοῖς παισὶ κοινωφελές. ἀλλὰ τῷ μὲν λέγει, εἰς τί φιλοτιμῇ τυραννεῖν; τῷ δέ, εἰς τί πολεμεῖς τὴν πατρίδα; ἐχρῆν δὲ τούτοις συμβουλεῦσαι, διελομένους τὰ πατρῷα, καὶ τὴν βασιλείαν παύσασθαι τῆς διχοστασίας, ὅπως ὑπέστησαν ἐξ ἀρχῆς ἀνὰ μέρος ἄρχειν. καὶ γὰρ ἐπὶ τῷ ποιητῇ ἦν ποιῆσαι αὐτοὺς μὴ πειθομένους, ὅπως τὰ τῆς ἱστορίας μένῃ βέβαια. εἵμαρτο γὰρ αὐτοὺς ἀλληλοκτόνους γενομένους, κατὰ τὰς ἀρὰς τοῦ πατρὸς ἀποθανεῖν. νῦν δὲ οὐδὲν τούτων πεποίηκεν.

III. — Συμβουλευτικός.

PERSUASION WHOLLY.

1. Helen, 865–1029. Ῥήσεις, 894–943, 947–995, 998–1029.

Pleaders, Helen and Menelaos.
Judge, Theonöe.

IV. — Ἐπιδεικτικός.

1. Troades, 353–405.
Speaker, Kassandra.

V. — Ἐπιτάφιοι.

1. Hiketides, 857–917.
Speaker, Adrastos.

2. Troades, 1156–1206.
Speaker, Hekabe.

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Alkestis.

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προοίμιον	πρόθεσις	πίστεις	ἐπίλογος
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